IMPORTANT

Before you remove the Wire-Seal, check the contents of this envelope with the listing on the front of the envelope. If any part is missing, your Howard W. Sams distributor will replace the entire PHOTOFACT set IF the Wire-Seal has not been damaged.

This PHOTOFACT Folder Set is

WIRE-SEALED FOR YOUR PROTECTION

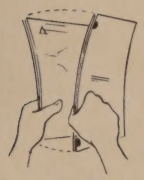
to guarantee completeness of contents

DO NOT ACCEPT IF SEAL HAS BEEN BROKEN

TO OPEN ***JUST DO THIS:***

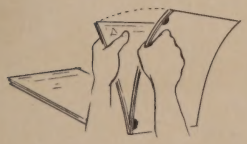
1

Take hold of the Set with both hands. Place your thumbs directly under the top wire-seal; then, divide the contents equally by putting your thumbs midway through the thickness of the Set. Now, pull the two sections apart at the top, firmly.



2

Repeat this process, pulling close to the wire-seal at the bottom, so that the set is now divided into two equal parts.



3

Continue this "pulling-apart" process with the section in which the wire-seals remain, dividing it in half.

4

Finally, remove the wire-seals left in the last section; this can easily be done with your fingernail or any sharp instrument.

Your "Safety-Sealed" PHOTOFACT Set is now ready for profit-making use . . .

IMPORTANT

Before you remove the Wire-Seal, check the contents of this envelope with the listing on the front of the envelope. If any part is missing, your Howard W. Sams distributor will replace the entire PHOTOFACT set IF the Wire-Seal has not been damaged.

The PHOTOFACT® Servicer

SET 488 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ JUNE 1960

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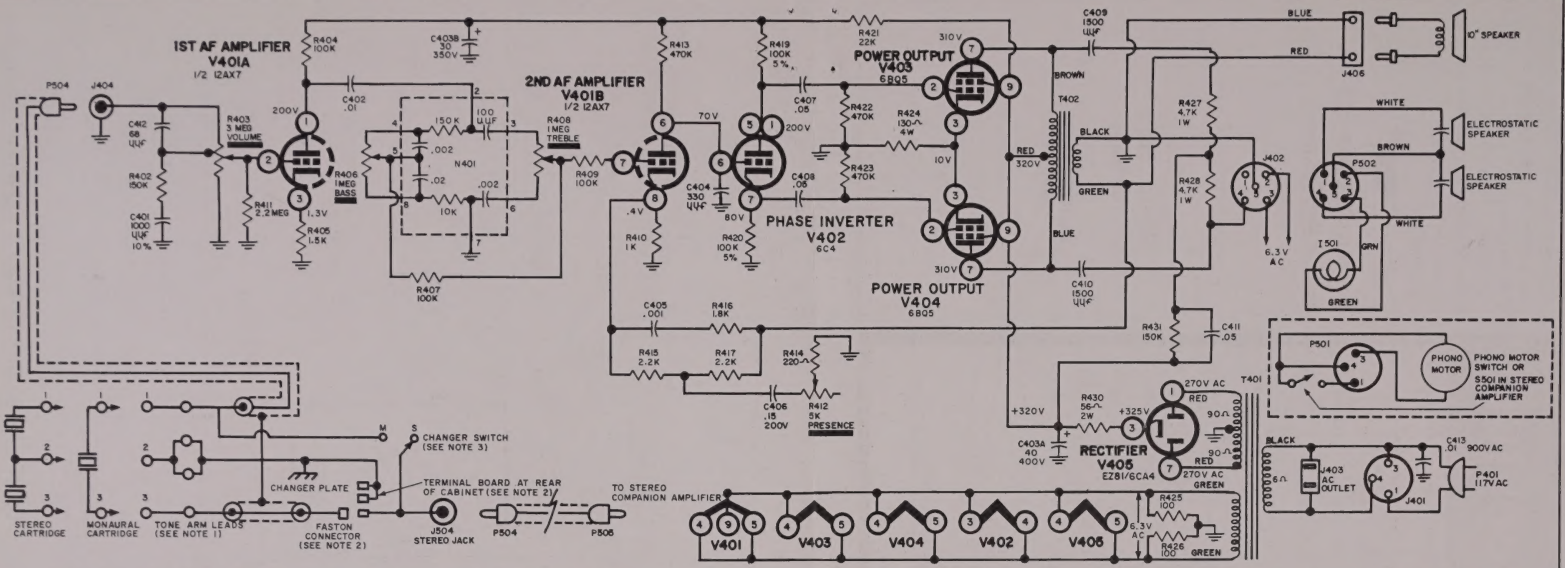
This Servicer provides you with essential data on other models or special equipment not covered in standard PHOTOFACT folders. The schematics and supplementary data included here will be of valuable help to you in servicing this equipment.

IN THIS ISSUE OF THE SERVICER:

Dumont Model RA-506

Sonata Model 1990



1. The tone arm of the changer used in the RA-506 Phonograph is wired to operate with either a monaural or a stereo cartridge.
2. The terminal board located at the rear of the cabinet permits the RA-506 Phonograph to be used monaurally, or in conjunction with an RA-506 stereophonic companion amplifier.
   For Monaural Operation: Ground the #3 contact of the monaural cartridge by placing the Faston Connector over the terminal board lug connecting to the changer plate (ground).
   For Stereophonic Operation: Place the Faston Connector over the terminal board lug connecting to J504, the stereo jack. This permits one channel of the stereo cartridge to be connected to the amplifier in the phonograph and the second channel to be connected to the stereo companion amplifier.
3. A changer switch is provided to permit playing of both monaural and stereophonic LP records with a stereo cartridge. Use the "S" position of the switch for stereophonic records and the "M" position for monaural records. NOTE: The changer switch is not connected in the circuit when the RA-506 Phonograph is set up for monaural operation.
4. All voltage measurements were taken under operating conditions. Voltage variations of ±20% of those shown are normal.
5. All resistors are ±10%, one-half watt, unless otherwise indicated.
6. All capacitors are ±20%, 500 volts, unless otherwise indicated.
7. Only those parts which are special and peculiar to the RA-506 are shown in the parts list. These parts are available at your Du Mont Distributor. Parts not listed are common items and may be obtained at local parts wholesalers.

SYM.	PART NO.	DESCRIPTION
C403	03 191 461	Cap. FE 40/30 mf 400V/350V
I 501	12 001 310	Lamp, Inc. .15 Amp 6.3V
J401	09 006 560	Connector Fem 3-Cont
J402	09 041 220	Connector Fem 5-Cont
J403	09 015 560	Connector Fem 2-Cont
N401	88 002 601	Audio Network
P401	50 269 140	Power Cable Ass'y
P501	09 055 000	Connector, Male 3-Cont
P502	09 055 010	Connector, Male 5-Cont
R403	01 071 363	Res, VC 3 Meg Loudness
R406	01 071 366	Res, VC 1 Meg Bass
R408	01 071 366	Res, VC 1 Meg Treble
R412	01 071 367	Res, VC 5K Presence
R424	02 223 180	Res, FW 130 Ohm 4W ±10%
S501	05 015 452	Rotary Power SW. (Stereo)
T401	20 014 032	Power Transformer

SYM.	PART NO.	DESCRIPTION
T402	20 014 061	Audio Output Tranformer
	12 011 320	Lamp Holder
	12 003 912	Lens, Indicator Light
	18 003 855	10" Speaker
	89 015 854	Speaker, Hi-Freq.
	19 035 201	4-Speed Record Changer
	30 045 614	45 RPM Spindle Adaptor
	19 035 251	Cartridge, Monaural
	19 035 222	Cartridge, Stereo
	32 009 061	Control Panel (Phono Cabinet)
	45 009 522	Knob, Control (Phono Cabinet)
	45 009 512	Knob, Bass (Stereo Cabinet)
	45 009 511	Knob, Treble (Stereo Cabinet)
	45 009 513	Knob, Volume (Stereo Cabinet)
	45 009 515	Knob, On-Off (Stereo Cabinet)
	45 009 514	Knob, Presence (Stereo Cabinet)

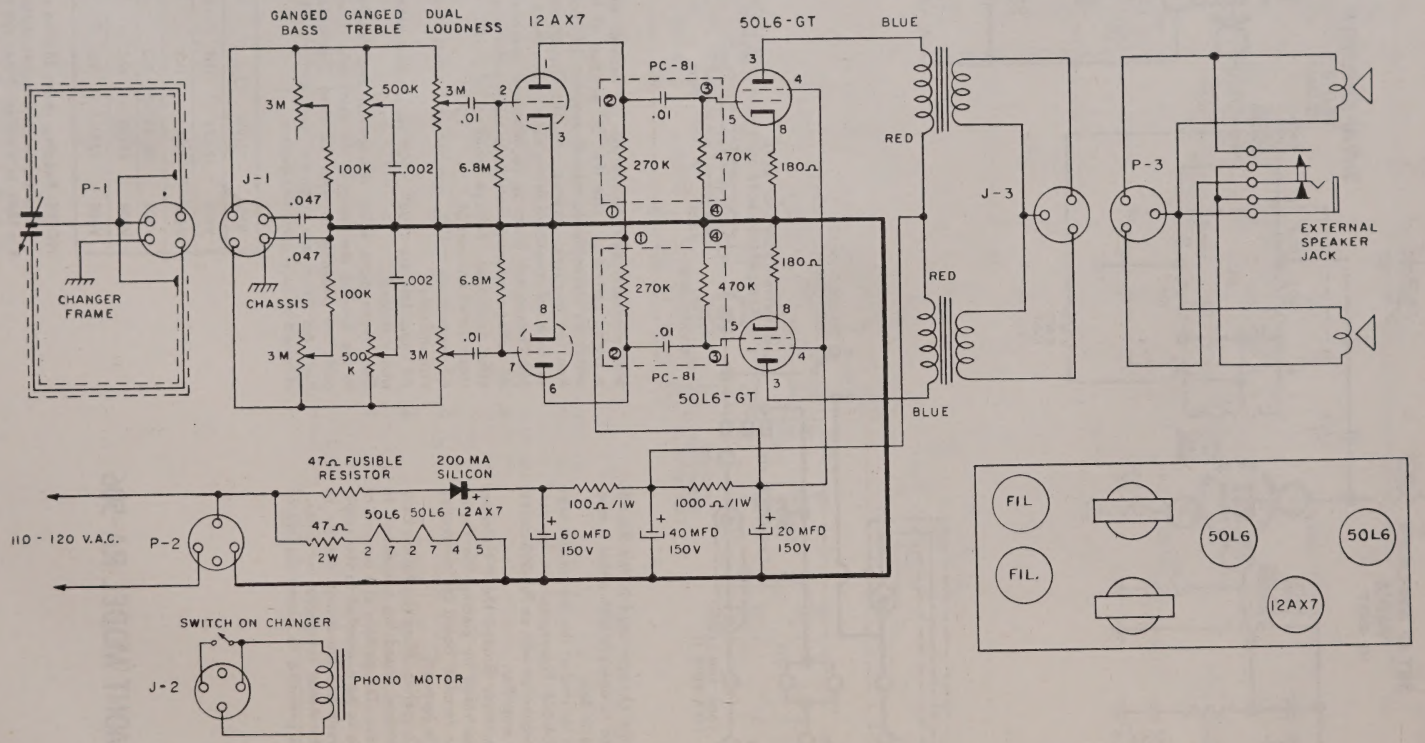
SYM.	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V401	12AX7	INF	15-1.2M	1.5K	50	50	INF	200K-1.2M	1K	50
V402	6C4	INF	NC	50	50	INF	INF	100K	——	——
V403	6BQ5	NC	470K	130	50	50	NC	INF	NC	INF
V404	6BQ5	NC	470K	130	50	50	NC	INF	NC	INF
V405	EZ81	90	NC	INF	50	50	NC	90	NC	NC

NOTES: Readings above 30 Meg are considered infinite.

The above resistance readings were taken with an RCA Model WV97A VTVM. All readings are in ohms, K=1000, M=million. When the reading is affected by a control, two readings are given. These readings indicate the variation produced by the control.

DUMONT MODEL RA-506

Schematic Diagram Courtesy of Dumont Emerson Corporation



SONATA MODEL 1990

Schematic Diagram Courtesy of Symphonic Radio & Electronic Corporation

PHOTOFACT® Folder with CIRCUITRACE®

CORONADO MODELS TV2-9545A, -9550A, -9555A, -9557A, -9560A, -9562A, -9564A, -9566A

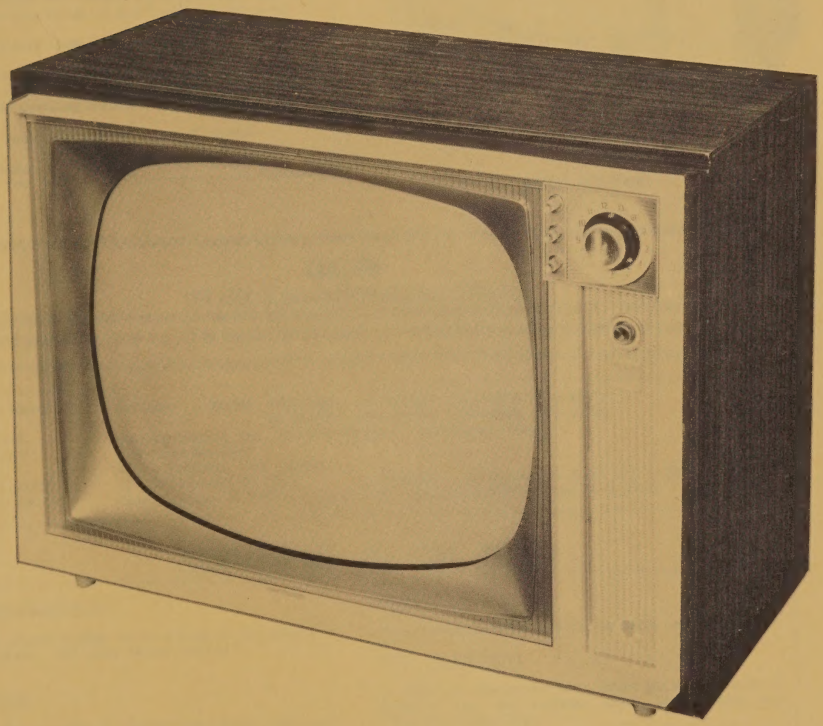
IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

CORONADO MODELS TV2-9545A, -9550A, -9555A, -9557A, -9560A, -9562A, -9564A, -9566A

CORONADO MODELS TV2-9545A, -9550A, -9555A, -9557A, -9560A, -9562A, -9564A, -9566A



MODEL TV2-9545A

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

SET 488 FOLDER 1

PHOTOFACT® Folder with CIRCUITRACE®

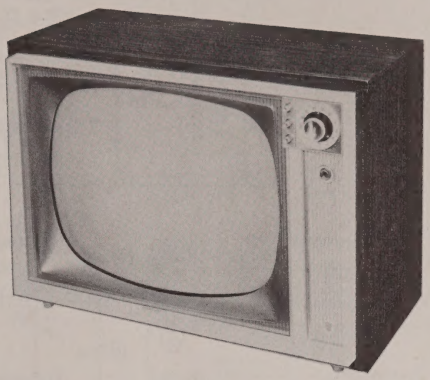
CORONADO MODELS TV2-9545A, -9550A, -9555A, -9557A, -9560A, -9562A, -9564A, -9566A

CORONADO MODELS TV2-9545A, -9550A, -9555A, -9557A, -9560A, -9562A, -9564A, -9566A

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 11 wood screws holding rear cover. Remove the rear cover.
2. Remove push-on type channel selector knob. Remove the channel selector escutcheon by pulling straight out. Remove remaining 6 push-on type knobs from the front.
3. Remove speaker leads and antenna leads.
4. Remove 1 wood screw holding tuner mounting bracket at top left rear of cabinet. Remove 4 wood screws holding picture tube mounting bracket at top of picture tube.
5. Remove 4 chassis bolts from bottom of cabinet.
6. Remove chassis.



MODEL TV2-9545A

CAUTION

ONE SIDE OF AC LINE CONNECTED TO CHASSIS.

Care should be exercised when connecting test equipment or physically contacting chassis. Isolation devices employed by manufacturer should be checked and properly connected before returning receiver to owner.

TRADE NAME	Coronado Models TV2-9545A, TV2-9550A, TV2-9555A, TV2-9557A, TV2-9560A, TV2-9562A, TV2-9564A, TV2-9566A
SUPPLIER	Gamble-Skogmo, Inc., 15 North 8th Street, Minneapolis, Minn.
TYPE SET	Television Receiver
TUBES	VHF - Fourteen, UHF - Fifteen
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 150 Watts, 1.45 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

Remove 2 screws holding the trim strip at the top edge of the safety glass. Tilt glass out and remove.

FUSE DEVICE

A 7.5Ω fusible resistor is used for low voltage power supply protection. (For location, see R61 "Chassis Top View".)

TUNER OSCILLATOR ADJUSTMENTS

To touch-up the VHF Oscillator, it is necessary to remove the rear cover. The adjustments are accessible thru a hole in the right side of the tuner rear cover as viewed from the rear of the tuner.

AGC

The AGC may be varied by means of a Range Control. (For location, see "Tube Placement Chart".)

FOCUS

No provision is made to vary the focus on this receiver.

BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Buzz Control for MINIMUM buzz and maximum sound. (For location, see "Tube Placement Chart".)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

The Horizontal Frequency Slug is used for the Horizontal Hold. (For location, see "Tube Placement Chart".)

HORIZONTAL DRIVE

The horizontal drive may be varied by a Horizontal Drive Trimmer. (For location, see "Tube Placement Chart".)

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

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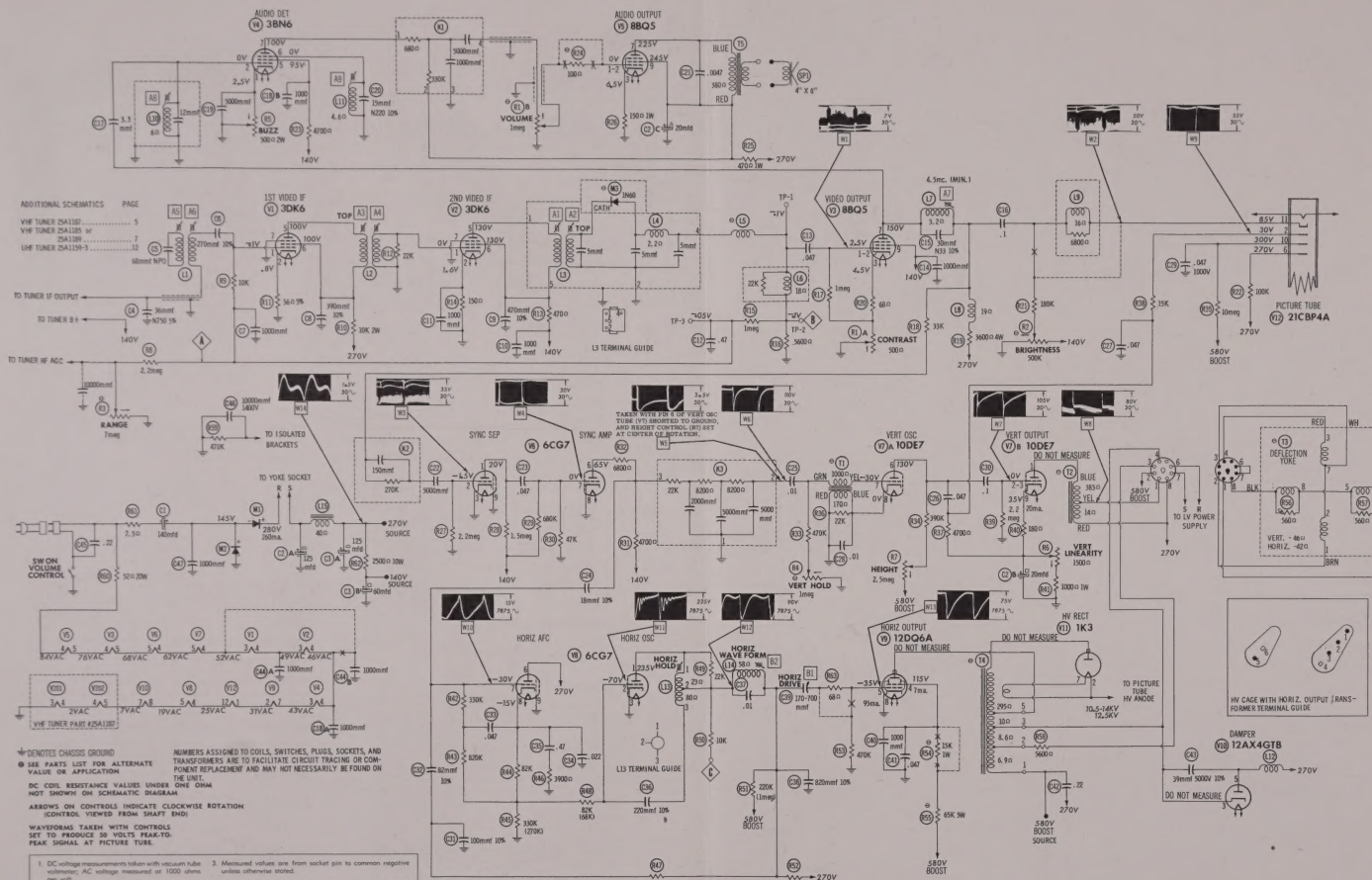
JA707R

DATE 6-60 SET 488 FOLDER 1

SET 488 FOLDER 1



DENOTES CHASSIS GROUND

SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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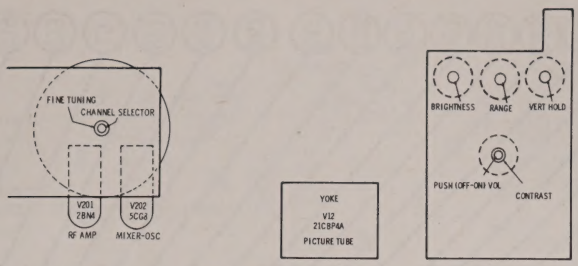
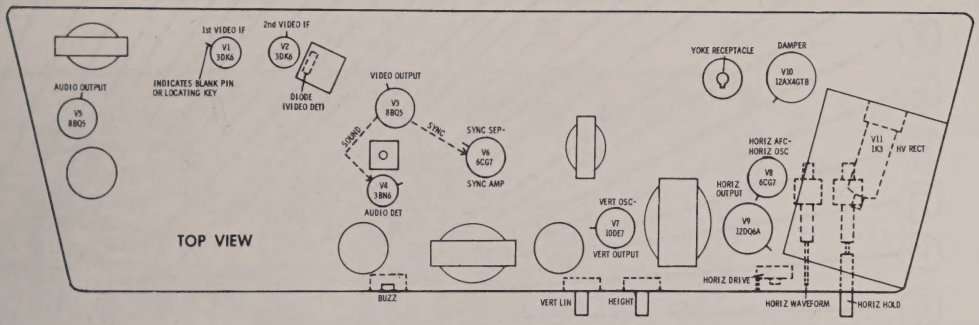
CORONADO MODELS TV2-9545A, -9550A, -9555A, -9557A, -9560A, -9562A, -9564A, -9566A

CORONADO MODELS TV2-9545A, -9550A, -9555A, -9557A, -9560A, -9562A, -9564A, -9566A

FOLDER 1

TUBE PLACEMENT CHART





TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

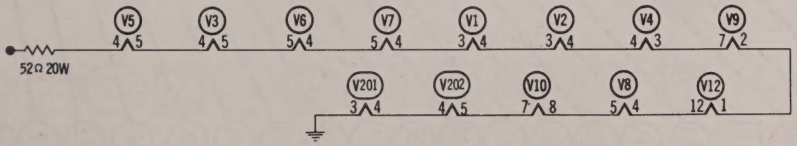
POWER SUPPLY FAILURE
No raster, no sound Fusible Resistor (LV Power), Rect. (LV Power)

SWEEP FAILURE
No raster, has sound V8, V9, V10, V11, V12
No vertical deflection V7
Poor vert. linearity or foldover V7
Poor horiz. linearity or foldover V8, V9, V10
Narrow picture Rect. (LV Power), V8, V9, V10
Vert. off freq. V7
Horiz. off freq. V8

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, Diode (Video Det), V3
No pic, no sound, has snow V201, V202
No pic, has sound, has raster V3, V12
Has pic, no sound V4, V5

SYNC FAILURE
No vert. sync V7
No horiz. sync V8
No vert. or horiz. sync V6

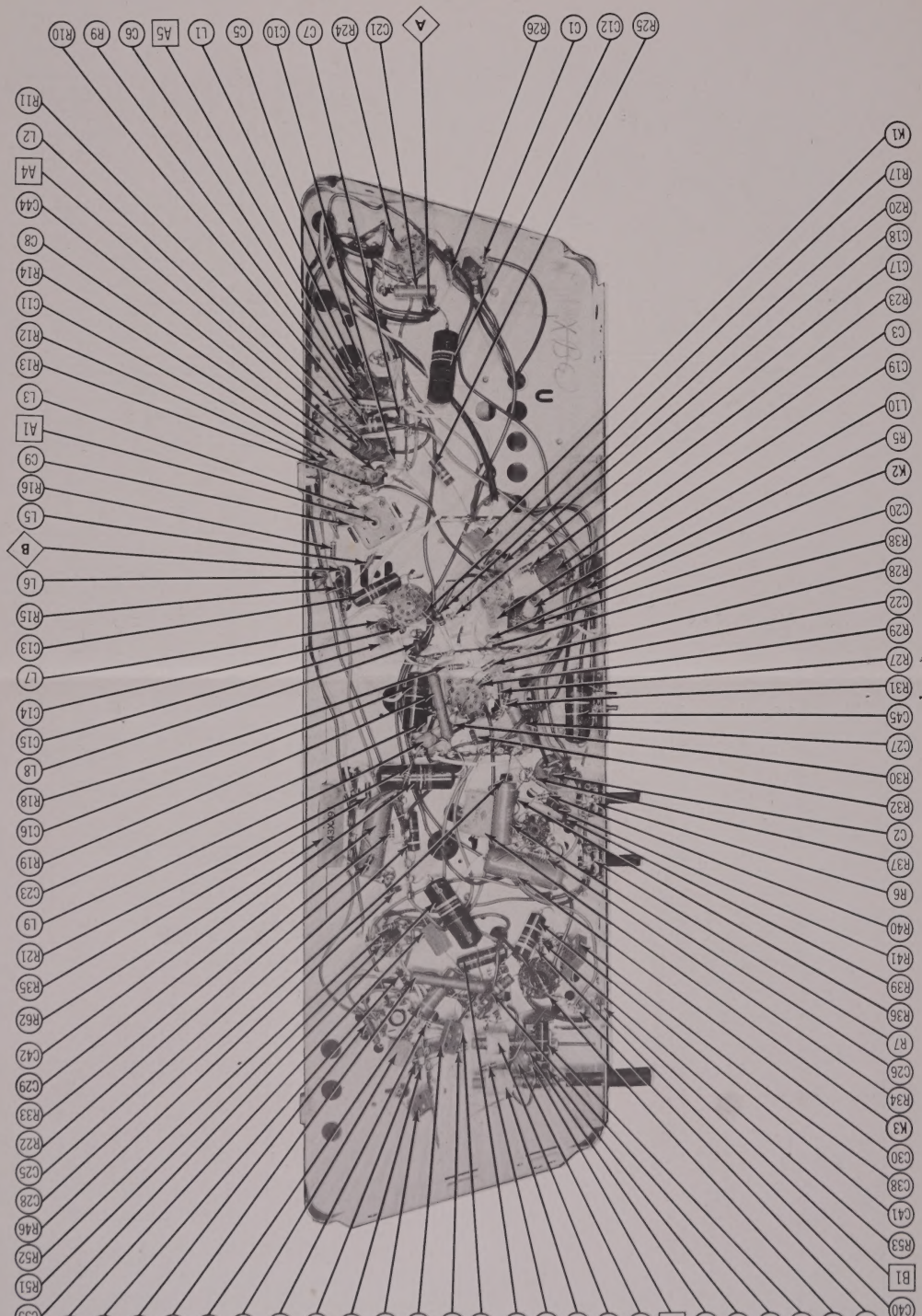
This receiver employs tubes used in a series filament network, an open filament in any tube will cause the set to be inoperative. (See circuit below.)

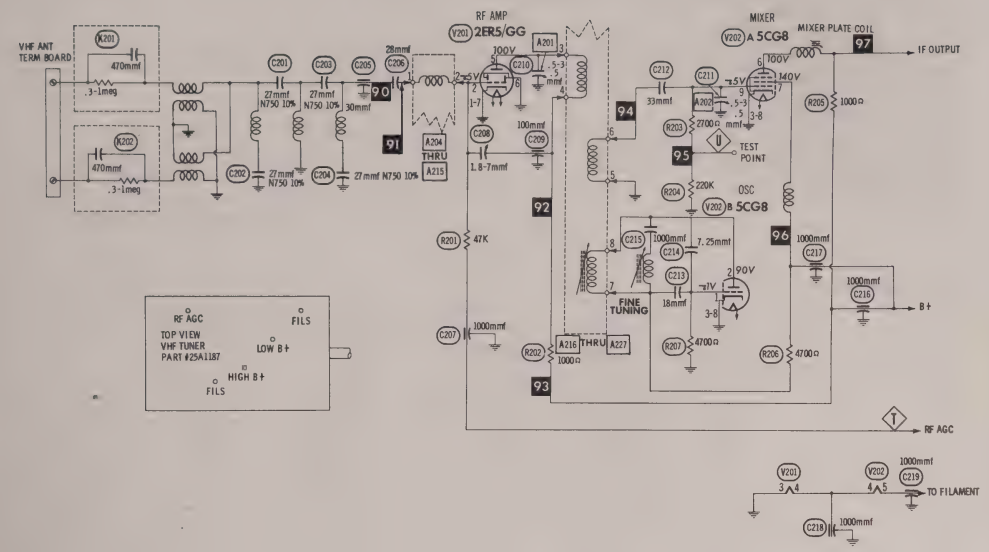


CORONADO MODELS TV2-9545A, -9550A, -9555A, -9557A, -9560A, -9562A, -9564A, -9566A

FOLDER 1

CHASSIS BOTTOM VIEW





A PHOTOFACT STANDARD NOTATION SCHEMATIC
with CIRCUITRACE

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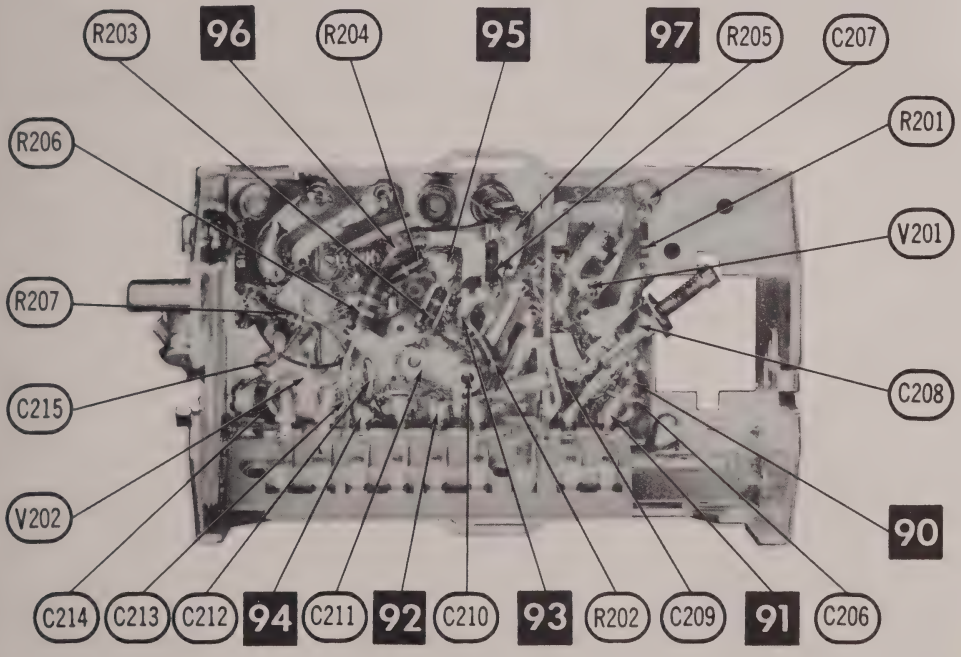
VHF TUNER 25A1187



A Howard W. Sams CIRCUITRACE Photo

VHF TUNER 25A1187
BOTTOM VIEW

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

TUNER ALIGNMENT INSTRUCTIONS
25A1187

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
Allow a 20 minute warm-up period for the receiver and test equipment.

RF AND MIXER ALIGNMENT

Connect the negative lead of a 2.5 volt bias supply to point ⊕. Positive to chassis.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading. (Approximately 1.5 volts).
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point ⊕. Low side to chassis.	A201, A202	Adjust A201 and A202 for maximum amplitude and symmetry with markers as shown in Fig. 201.
2.	"	"	"	"	"	Vert. Amp. thru detector (Fig. 202). to plate of 1st. IF tube. Low side to chassis.	A203	Adjust A203 to obtain MINIMUM response on the scope.
3.	"	"	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 10K to point ⊕. Low side to chassis.	A204	Adjust for maximum amplitude of response similar to Fig. 201. Adjust by expanding or compressing coil turns.
			207MC	205.25MC 209.75MC	12		A205	
			201MC	199.25MC 203.75MC	11		A206	
			195MC	193.25MC 197.75MC	10		A207	
			189MC	187.25MC 191.75MC	9		A208	
			183MC	181.25MC 185.75MC	8		A209	
			177MC	175.25MC 179.75MC	7		A210	
			85MC	83.25MC 87.75MC	6		A211	
			79MC	77.25MC 81.75MC	5		A212	
			69MC	67.25MC 71.75MC	4		A213	
			63MC	61.25MC 65.75MC	3		A214	
			57MC	55.25MC 59.75MC	2		A215	

OSCILLATOR ALIGNMENT

Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading. (Approximately 1.5 volts).
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47K across video detector load.	A216	Adjust to place sound marker in trap notch as in Fig. 203. Video marker should fall at 50%.
			207MC	205.25MC 209.75MC	12		A217	
			201MC	199.25MC 203.75MC	11		A218	
			195MC	193.25MC 197.75MC	10		A219	
			189MC	187.25MC 191.75MC	9		A220	
			183MC	181.25MC 185.75MC	8		A221	
			177MC	175.25MC 179.75MC	7		A222	
			85MC	83.25MC 87.75MC	6		A223	
			79MC	77.25MC 81.75MC	5		A224	
			69MC	67.25MC 71.75MC	4		A225	
			63MC	61.25MC 65.75MC	3		A226	
			57MC	55.25MC 59.75MC	2		A227	

FIG. 201

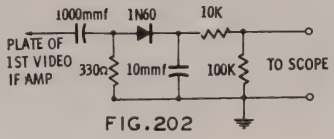


FIG. 202

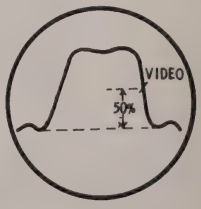
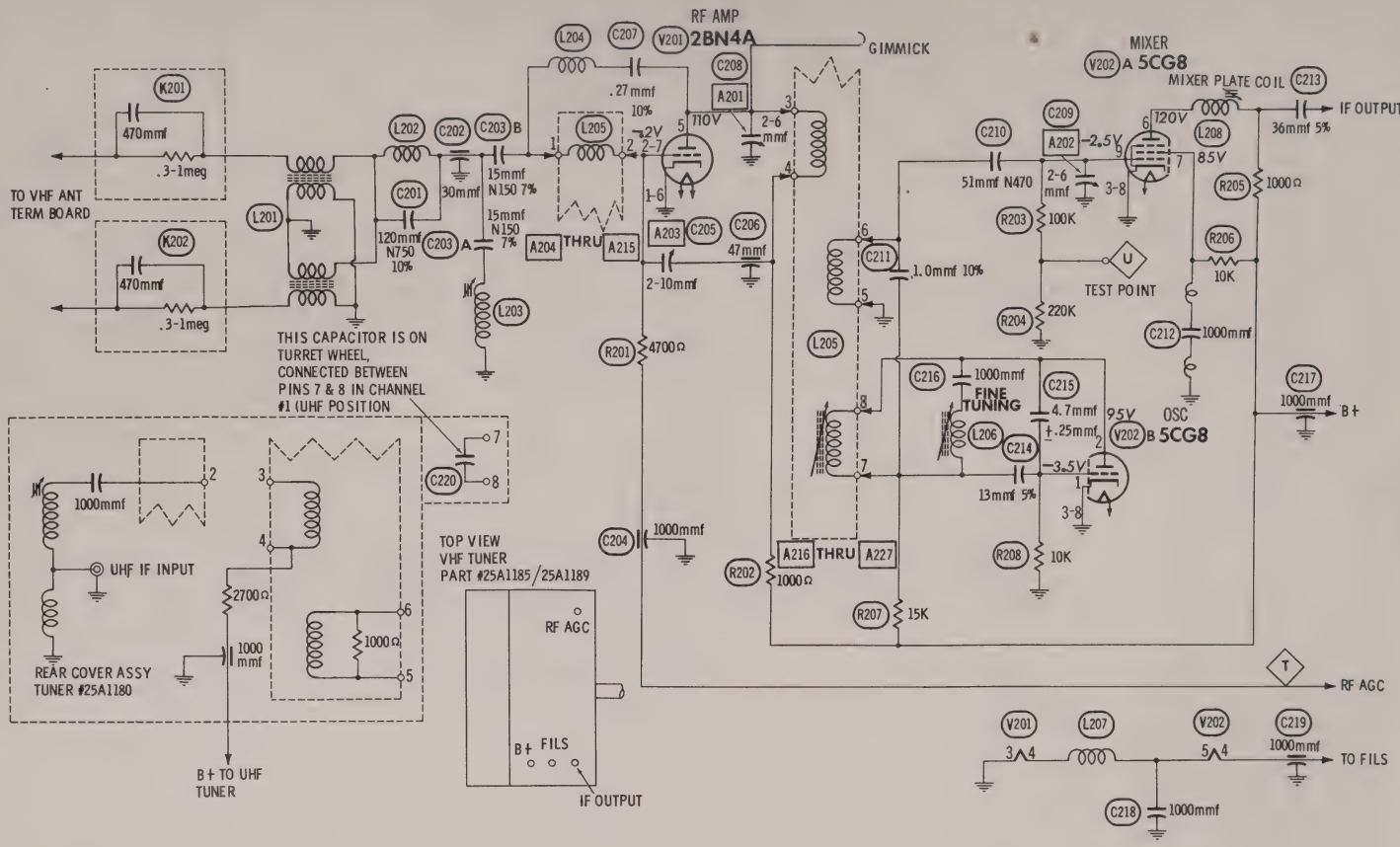


FIG 203



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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VHF TUNER 25A1185 OR 25A1189

CORONADO MODELS TV2-9545A, -9550A, -9555A, -9557A, -9560A, -9562A, -9564A, -9566A

TUNER ALIGNMENT INSTRUCTIONS

25A1185, 25A1189

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VHF RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Connect the negative lead of a 2.5 volt bias supply to point (T). Positive to chassis.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point (T). Low side to chassis.	A201 A202 A203	Adjust A201 and A202 for maximum amplitude and symmetry with markers as shown in Fig. 201. Increase bias for MINIMUM amplitude of response curve. Without changing the bias adjust A203 to obtain MINIMUM response on the scope.
2.	"	"	213MC	211.25MC 215.75MC	13	"	A204	Adjust for maximum amplitude of response similar to Fig. 201. Adjust by expanding or compressing coil turns.
			207MC	205.25MC 209.75MC	12		A205	
			201MC	199.25MC 203.75MC	11		A206	
			195MC	193.25MC 197.75MC	10		A207	
			189MC	187.25MC 191.75MC	9		A208	
			183MC	181.25MC 185.75MC	8		A209	
			177MC	175.25MC 179.75MC	7		A210	
			85MC	83.25MC 87.75MC	6		A211	
			79MC	77.25MC 81.75MC	5		A212	
			69MC	67.25MC 71.75MC	4		A213	
			63MC	61.25MC 65.75MC	3		A214	
			57MC	55.25MC 59.75MC	2		A215	

VHF OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47KΩ across Video Det. load.	A216	Adjust to place sound marker in trap notch as in Fig. 202. Video marker should fall at 50%.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A217	
			201MC	199.25MC 203.75MC	11		A218	
			195MC	193.25MC 197.75MC	10		A219	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A220	
			183MC	181.25MC 185.75MC	8		A221	
			177MC	175.25MC 179.75MC	7		A222	
			85MC	83.25MC 87.75MC	6		A223	
			79MC	77.25MC 81.75MC	5		A224	
			69MC	67.25MC 71.75MC	4		A225	
			63MC	61.25MC 65.75MC	3		A226	
			57MC	55.25MC 59.75MC	2		A227	

FIG. 201

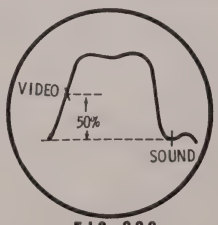


FIG. 202

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Use an ISOLATION TRANSFORMER TO PROTECT the Test Equipment.
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Connect the negative lead of a 7 volt bias supply to point (A). Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.01mfd	High side to pin 1 (grid) of 2nd Video IF. Low side to chassis. Adjust output for 4VP-P on scope.	44.0MC (10MC Swp)	42.4MC 45.75MC	Any non-interfering channel	Vert. Amp. thru 47K to point (B). Low side to chassis. (Across Video Det. load)	A1, A2	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. A1 controls marker position and A2 controls gain and symmetry.
2.	"	High side to pin 1 (grid) of 1st Video IF. Low side to chassis. Adjust for 4VP-P on scope.	"	42.4MC 43.5MC 44.5MC 45.75MC	"	"	A3, A4	Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown. A3 controls marker position and A4 controls gain and symmetry.
3.	Direct	Place a thin insulated metal strip between the Mixer-Osc. tube (V202), and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	"	41.25MC 42.4MC 43.5MC 44.5MC 45.75MC	"	"	A5, A6, & Mixer Plate Coil	Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown. Adjust A5 to place 41.25MC marker in trap notch.

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4.	.01mfd	High side to pin 2 (grid) of Video Output. Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	AC probe to pin 11 (cathode) of picture tube. Common to chassis. Use 0-10V AC scale.	A7	Adjust for MINIMUM deflection.

SOUND IF ALIGNMENT

Tune in a TV station and reduce the signal strength at the antenna terminals until a hiss is heard in the sound similar to super-regeneration.
Adjust A8, A9 and the Buzz control for maximum undistorted sound with MINIMUM buzz.
If the hiss disappears during adjusting, further reduce the signal strength.

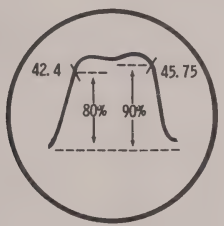


FIG.1

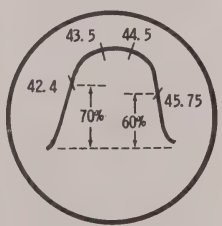


FIG. 2

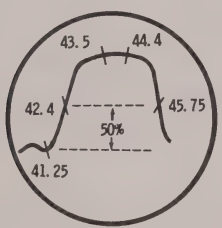


FIG. 3

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	CBS / GENERAL ELECTRIC / RAYTHEON / SYLVANIA — USE	TYPE
V1	1st Video I.F. Amp	3DE8
V2	2nd Video I.F. Amp	3DE8
V3	Video Output	6BQ6
V4	Audio Det.	12BH6
V5	Audio Output	6BQ6
V6	Sync Sep. -Sync Amp.	6CQ7
V7	Vert. Osc. -Vert. Output	10DE7
V8	Horiz. AFC -Horiz. Osc.	6CQ7
V9	Horiz. Output	12DQ6A
V10	Damper	13AX4GTB
V11	H.V. Rect.	1B3

PICTURE TUBE

ITEM No.	REPLACEMENT DATA: CORONADO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
VL3	21CBP4-A	21CBP4-A ①	21CBP4-A ①	21CBP4, 21CBP4-A	21CBP4, 21CBP4-A ②	① Aluminized ② Silver Screen 85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP.	VOLT.	REPLACEMENT DATA: CORONADO PART No.	ARROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	160	150	45X431	AFH8-35	XA0261	FP117	TM8-34	TVL-1428	
C3A	4125	300	45X431	AFH41-03-60	XC0733.2	FP333.15	TMT-26	TVL-3574.3 *	
B	430	300							
C	430	50							
C3A	4125	300	45X467	AFH3-99-82	D0046	FP336.75	TMT-26	TVL-3574.6	
B	450	300							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	SUMERCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	39 NTSC 5%			TCN-36	C10Q351J			
C5	68 MPO		MPO-D1-68	TDZ-68	C10Q68C	CCTO-680	CNO-468	10TCC-Q68
C6	370 10%		D1-370	DD-271	L10T27	CCD-371	GP-327	10TS-T27
C7	1000		D1-1000	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C8	390 10%		D1-390	DD-391	L10T39	CCD-391	GP-339	10TS-T39
C9	470 10%		D1-470	DD-471	5RT247	CCD-471	GP-347	10TS-T47
C10	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C11	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C12	.47 200V		P28EN-47	CUB2P47	2DP-5-474	GEM-2047	2TM-P47	
C13	.047 200V		P28EN-047	CUB2S47	2DP-5-473	GEM-4147	2TM-S47	
C14	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C15	30 N33-10%	#47X669						
C16	.1 400V		P28EN-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1
C17	3.3		MPO-S1 3.3	TCZ-3R3	C10Y33C	CCTO-3R3	CNO-333	10TCC-Y33
C18A	1000		BPD-2X001	DD3-103	BYC6D01	CCD-102 ①	B2X210	5HK-2D10
B	1000					CCD-103 ②		
C19	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C20	15 N330 10%	#47X672				*		10TCR-Q15
C21	.0047 600V		P28EN-0047	D4-472	CUB6D47	6DP-4-472	GEM-6247	6TM-D47
C22	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C23	.047 400V		P28EN-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C24	33 10%		1469-00018	TC2-18	C10Q33J	CM-20B-180K	CNO-418	MS-418
C25	.01 600V		P28EN-01	D6-103	CUB6S1	6DP-4-103	GEM-611	6TM-S1
C26	.047 600V		P28EN-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C27	.047 200V		P28EN-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C28	.01 600V		P28EN-01	D6-103	CUB4S1	4DP-4-103	GEM-411	4TM-S1
C29	.047 1000V		P10EN-047		CUB10S47	10DP-3-473	GEM-10147	10TM-S47
C30	.1 800V		P28EN-1	DF-104	CUB5P1	5DP-4-104	GEM-501	5TM-P1
C31	220 10%		1469-0001	DB-221	22RST1	CM-20B-101K	MCB225	MS-31
C32	82 10%		1469-000082	D8-820	22RSQ82	CM-20B-820K	CNO-482	MS-482
C33	.047 200V		P28EN-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C34	.047 200V		P28EN-023		CUB4S23	4DP-3-223	GEM-4223	2TM-S23
C35	.47 200V		P28EN-47		CUB2P47	2DP-5-474	GEM-2047	2TM-P47
C36	220 10%		1469-0022	D8-221	22RST22	CM-20B-221K	MCB227	MS-322
C37	.01 600V		P28EN-01	D6-103	CUB6S1	6DP-4-103	GEM-611	6TM-S1
C38	820 10%		1469-00082	D8-821	1RST82	CM-20B-821K	MCB2S2	MS-382
C39	170-700	#17X376				459		
C40	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C41	.047 400V		P28EN-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C42	23 400V		P28EN-23		CUB4P23	4DP-5-234	GEM-4[illegible]	4TM-P23
C43	39 5000V 10%	#47X756				HVDM-43-3902	6DT-439	
C44A	1000		BPD-2X001	DD3-103	BYC6D01	CCD-102 ①	B2X210	5HK-2D10
B	1000					CCD-103 ②		
C45	22 400V		P28EN-22		CUB4P22	4DP-5-224	GEM-4022	4TM-P22
C46	10000 400V		DAC-27	DD16-103	EYE16S1	16DP-3-103	2HV-110	M03-81
C47	1000		BPD-001	DD-102	BYA10D1	CCD-103	B-210	5HK-D10

\# Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: CORONADO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500Ω	½	7EX31 ①		RTV-688			Contrast
B	Linear				Not Req.		● UE6065-8	Volume
C	Switch				Not Req.			Push-Pull Off-On
R2A	500 K	½	40X447 ②	AB-59	A47-500K-8	S11-133	U50	Brightness
B	Shaft			AE-8	RS-3/16	SE9	DS-37	
R3A	1meg	½	40X474 ③	AB-89	A47-1.5meg-8	S11-142	U52	
B	Shaft			AE-8	RS-3/16	SE9	DS-37	
R4A	1meg	½	40X446 ④	AB-89	A47-1meg-8	S11-137	U54	Vert. Hold
B	Shaft			AE-8	RS-3/16	SE9	DS-37	
R5	500Ω	2(WW)	40X473	WH-501	33-500	U13-500	R500L	Horiz. Lin.
R6A	1500Ω	½	40X484	AB-8	B47-1500-8	S11-109	PTA15L	
B	Shaft			AE-19	Not Req.	T164	Not Req.	

CONTROLS (cont)

ITEM No.	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: CORONADO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R7A	2.5meg	½	40X466	AB-83	B47-2.5meg-8	B11-239	SU566	Height
B	Shaft			AE-19	Not Req.	T164	Not Req.	

● "FTA-LOC" Equivalent: FA83L, RUP161, OF1000.
① Models TV3-9545A, -9550A use (Part #78X30).
② Models TV2-9545A, -9550A use (Part #40X423).
③ Models TV2-9545A, -9550A use (Part #40X465).
④ Models TV2-9545A, -9550A use (Part #40X425).

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R8	2.2meg	
R9	10K	
R10	10K 2W	
R11	56Ω 5%	
R12	22K	
R13	470Ω	
R14	150Ω	
R15	1meg	
R16	560Ω	
R17	1meg	
R18	33K	
R19	3600Ω 4W	#43X331
R20	68Ω	
R21	180K	
R22	100K	
R23	4700Ω	
R24	100Ω	Note 1
R25	470Ω 1W	
R26	150Ω 1W	

ITEM No.	RATING	REMARKS
R27	2.2meg	
R28	1.5meg	
R29	680K	
R30	47K	
R31	4700Ω	
R32	6800Ω	
R33	470K	
R34	390K	
R35	10meg	
R36	22K	
R37	4700Ω	
R38	15K	
R39	2.2meg	
R40	180Ω	
R41	10000 1W	
R42	330K	
R43	820K	
R44	82K	
R45	330K	(370K) *

ITEM No.	RATING	REMARKS
R46	3900Ω	
R47	220K	
R48	82K	(68K) *
R49	22K	
R50	10K	
R51	220K	(1meg) *
R52	56K	
R53	470K	
R54	15K 1W	Note 1
R55	65K 5W	#43X342 Note 2
R56	560Ω	
R57	560Ω	
R58	5600Ω	
R59	470K	
R60	52Ω 20W	#43X202
R61	7.5Ω	#43X377
R62	2500Ω 10W	#43X391
R63	68Ω	

* Alternate value. # Part Number. Note 1. May not be used in some versions. Note 2. Alternate 80K 5W (Part #43X348).

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: CORONADO PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1A	1st Video IF	9A2436				6231 ▲		
B	41.25MC Trap							
L2	2nd Video IF	9A2444						
L3	3rd Video IF	9A2435						
L4	Series Peaking Coil	†						30uh
L5	Resonant Choke							5.9uh ①
L6	Shunt Peaking Coil	36A23		19-3300▲	19-3300▲	TV-1994	6155▲	390uh ②
L7	4.5MC Trap	9A2366		20-1004	20-1004	TV-151	1459 *	SF-3
L8	Shunt Peaking Coil	36A27		19-3330	19-3330	TV-200	6132	VP-7 325uh
L9	Series Peaking Coil	36A46		19-3275▲	19-3275▲	TV-198▲	6130▲	VP-6▲ 270uh ③
L10	1st Sound IF	9A2434		17-1026	17-1026			
L11	Quadrature Coil	9A2367		20-1005	20-1005	TV-121	1480	
L12	RF Choke	9A2380		19-1001	19-1001	RC-562	4604	1.5uh

① Some versions may use 30uh choke Part #9A2375. † Part of L3. ▲ Disregard tap
② Wound on 22K resistor. ▲ Disregard secondary winding. * Parallel with 6800Ω resistor.
③ Wound on 6800Ω resistor. ▲ Parallel with 22K resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.: PRI.	SEC.	REPLACEMENT DATA: CORONADO PART No.	Halldorson PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No.	NOTES
L13	103Ω		8-35A1003	H3-7	TV-165	6213		H3-7	Horiz. Osc. Tap @ 80Ω
			1EX20						Extension Shaft
L14	58Ω		9A2372	H3-5		6315		H3-5	Horiz. Waveform

FILTER CHOKE

ITEM No.	RATINGS: CURRENT (Measured)	DC. RES.	INDUCTANCE @ CURRENT 1000 ^(½)	REPLACEMENT DATA: CORONADO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L15	.220A	40Ω	1 Hy.	51X95-11		26C44			26C44	C-34X

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: CORONADO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	Vert. Osc.	54X19-A	26A03	A-3003	V405	VB018	A-8125	26A03	A-9TX
	Alt. Vert. Osc.	54X19	26A03	A-3003	V405	VB019	A-8125	26A03	A-9TX
T2	Vert. Output	51X207-1A	26S73 ①	A-2855	V30Y[illegible]	VO26 ②	VO-108	26S73 ①	A-11SX ③
	Alt. Vert. Output	51X207	26S73 ①	A-2855	V30Y[illegible]	VO26 ③	VO-108	26S73 ①	A-11SX ③
T3	Yoke-Horiz. (24MH)	C9A2452 ④	Y-16	MDF-92	Y90F19/43		DY-16A	Y-16	Y-45 &
	(90°)-Vert. (93MH)		⑤ ⑥	⑤ ⑥	⑤ ⑥		⑤ ⑥ ⑦	⑤ ⑥	NW-8 ⑤
	Alt. Yoke	9A2452 ④	Y-16	MDF-92	Y90F19/43		DY-18A	Y-16	Y-45 &
			⑤ ⑥	⑤ ⑥ ⑦	⑤ ⑥		⑤ ⑥ ⑦	⑤ ⑥	NW-23 ⑤
	Rear Cover & Centering Device	2A435							YC-1
	Yoke Retainer	53X341							CL-1
	Yoke Clamp	30X581							
T4	Horiz. Output	53X386A							
	Alt. Horiz. Output	53X381							

① Drill new mounting hole(s).
② Connect as autoformer
③ Do not use screws tap.
④ Includes R56 and R57.
⑤ Use original rear cover and centering device
⑥ Connect same as original.
⑦ Remove horizontal damping network from yoke.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	SEC.	REPLACEMENT DATA: CORONADO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T5	8000Ω	3-4Ω	51X206	24849	A-3026	AU-801	A-3877	24849	S-8X	

SPEAKER

ITEM No.	TYPE: SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA: CORONADO PART No.	QUAM PART No.	NOTES
SP1	8"	PM	3-4Ω	12AS27	8A0T	Model TV3-9550A
	4" x 8"	PM	3-4Ω	12AS31	4SA1	Models TV2-9545A, -9558A, -9557A
	4"	PM	3-4Ω	12AS43	4A0T	
	6"	PM		12AS79		Models TV3-9560A, -9562A, -9564A, -9566A

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	CORONADO PART No.	REPLACEMENT DATA
K1	Audio Coupling	1000mmf, 5000mmf, 680Ω, 250K	7EX48	
K2	Sync Coupling	1000mmf, 470K	76X15	
K3	Vert. Integrator	2000mmf, 5000mmf, 5000mmf, 820Ω, 820Ω, 22K	76X7	Aerovox PA-110 Centralab PC-100 Cornell-Dubilier 115TM1 Sprague V-1/V-3 Mallory MC-100

RECTIFIERS

ITEM No.	RATING: CURRENT (Measured)	REPLACEMENT DATA: CORONADO PART No.	INTERNATIONAL PART No.	ITT PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.250A	6GX23 ①	SD500 ①	HA504 ①	40K ①	8R500 ①	① Silicon Type
M3	.250A	6GX23 ①	SD500 ①	HA504 ①	40K ①	8R500 ①	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA: CORONADO PART No.	CBS PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
M3	1N60 (CBT06) *		1N60	1N60	1N60	Video Det. (Pigtail) * Alternate

MISCELLANEOUS

ITEM No.	PART NAME	CORONADO PART No.	NOTES
M4	Tuner	25A1185 or 25A1189	VHF, Models TV2-9545A, -9550A
	Tuner	25A1187	VHF, Models TV3-9555A, -9557A, -9560A, -9562A, -9564A, -9566A
	Tuner	25A1189-3	UHF
	Board	2A476	Beam Alignment (Used with Some Picture Tubes)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

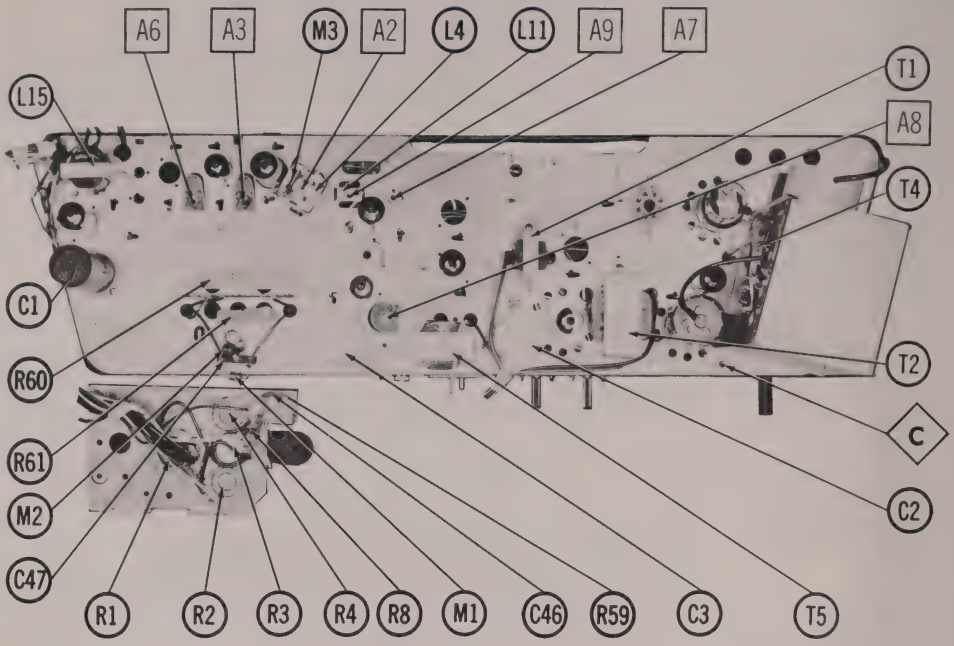
NAME	PART NO.	DESCRIPTION
Safety Glass	17X202-1	Tinted
Mask Ass'y.	8-18A1188	Models TV2-9555A, -9557A
Mask Ass'y.	8-35A1188	Models TV2-9560A, -9562A, -9564A, -9566A
Mask Ass'y.	8-35A1188	Models TV2-9545A, -9550A
Knob	10A979-1	Channel Selector, Models TV2-9545A, -9550A
Knob	10A958-1	Channel Selector, Models TV2-9555A, -9557A, -9560A, -9562A, -9564A, -9566A
Knob	10A953-1	Fine Tuning, Models TV2-9545A, -9550A
Knob	10A957-1	Fine Tuning, Models TV2-9555A, -9557A, -9560A, -9562A, -9564A, -9566A
Knob	10A933-1	On-Off Volume
Knob	10A933-1	Contrast
Knob	10A944-1	Brightness, Range, Vert., Models TV2-9555A, -9557A, -9560A, -9562A, -9564A, -9566A
Knob	10A975-1	Brightness, Range, Vert., Models TV2-9545A, -9550A
Dial	54X830-1	Channel Selector, Models TV2-9545A, -9550A
Leg	8LX34-4	Model TV2-9557A
Leg	8LX34-3	Model TV2-9557A
Leg	8LX33-4	Model TV2-9550A

WIRING DATA

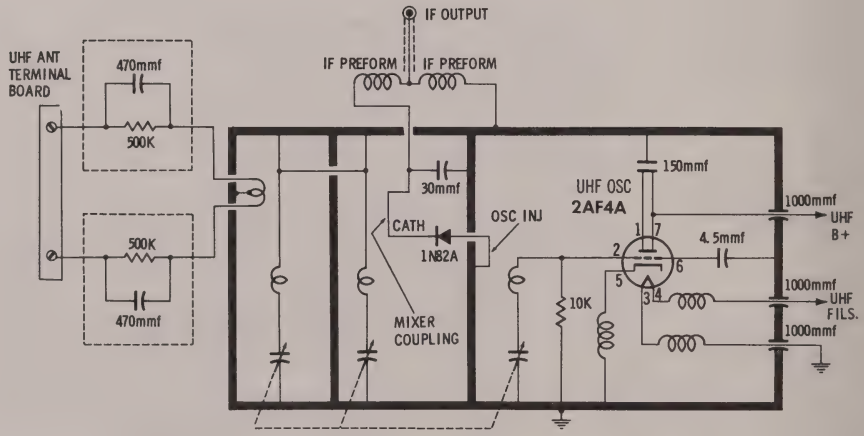
High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8534 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8494 (Round) - 4 Conductor 8465 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

CORONADO MODELS TV2-9545A, -9550A, -9555A, -9557A, -9560A, -9562A, -9564A, -9566A

FOLDER 1



CHASSIS TOP VIEW



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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UHF TUNER #25A1159-3

TUNER PARTS LIST AND DESCRIPTIONS

25A1185, 25A1189

TUBES

◆ CBS ◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆

ITEM No.	USE	TYPE
V201	RF Amplifier	2BN4A

ITEM No.	USE	TYPE
V202	Mixer-Osc.	5CG8

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	120 N750 10%			TCN-120	C10T120U	CCTN-121	CN7-312	10TCU-T12
C202	30	#13M350U300N-02						
C203A	15 N150 7%	#13L8PG150N2				*		10TCP-Q15
B	15 N150 7%					*		10TCP-Q15
C204	1000		EF-001	MFT-1000		CCF-102	CT280A	
C205	2-10	#31B-206-08		829-10				
C206	47	#13M320U470J-09						
C207	.27 10%	#13D-111-45						
C208	2-6			829-6		VC-3	CT552	
C209	2-6			829-6		VC-3	CT552	
C210	51 N470	#13L-029				*		
C211	1.0 10%		NPO-SI 1.0	TCZ-1			CNO-510	10TCC-V10
C212	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C213	36 5%	#13M350U360J-01						
C214	15 5%			TCZ-12	C10Q13C	CCTO-120	CNO-412	10TCC-Q12
C215	4.7 ± .25mmf		NPO-DI 4.7	DTZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C216	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C217	1000		EF-001	MFT-1000		CCF-102	CT280A	
C218	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C219	1000		EF-001	MFT-1000		CCF-102	CT280A	
C220								

"Standard Coil" Part Numbers.

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R201	4700Ω	
R202	1000Ω	
R203	100K	

ITEM No.	RATING	REMARKS
R204	220K	
R205	1000Ω	
R206	10K	

ITEM No.	RATING	REMARKS
R207	15K	
R208	10K	

COILS (RF-IF)

ITEM No.	USE	PART No.	NOTES
L201	Ant. Trans.	31T-3397	
L202	RF Choke	34A-748	
L203	IF Trap Coil	34A-762	
L204	RF Choke	34A-1005	

ITEM No.	USE	PART No.	NOTES
L205	Ant. RF, Mixer Grid & Osc. Coils	31T-3361-07	Channel 2-13, Includes Rotor.
L206	Fine Tuning Coil	34A-787-03	
L207	Fil. Choke	31K-137-027	
L208	Mixer Plate Coil	31UA-580-017	

Note: Part numbers listed above are "Standard Coil" Part Numbers.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	PART No.	REPLACEMENT DATA
K201	Antenna Isolation	470mmf, .3-1meg	13P-195	Centralab RC-471 Sprague AC1-1
K202	Antenna Isolation	470mmf, .3-1meg	13P-195	Centralab RC-471 Sprague AC1-1

Note: Part numbers listed above are "Standard Coil" Part Numbers.

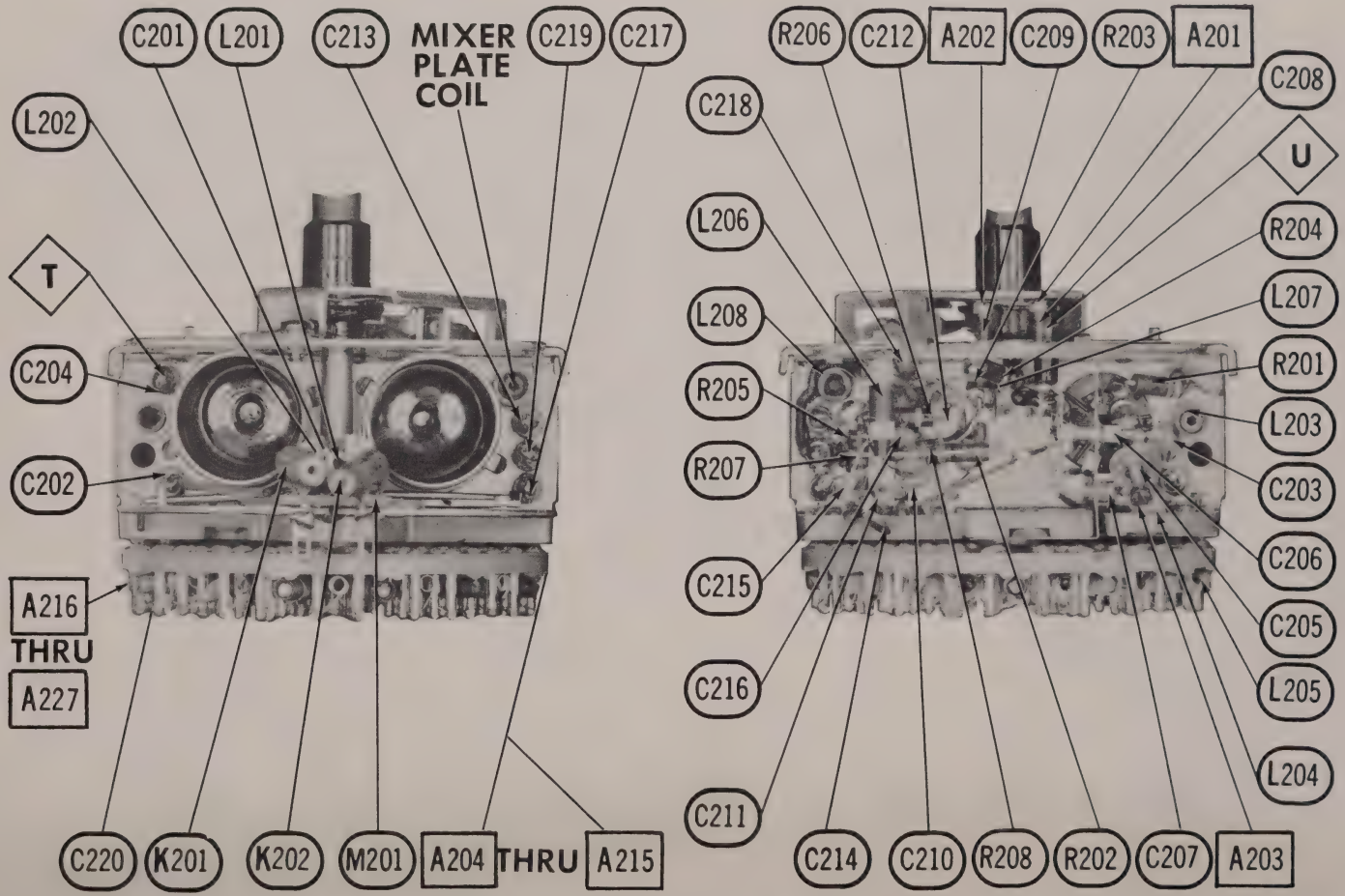
MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
M201	Antenna Input Fine Tuning Shaft & Cam	31T-3398-06 31T-3413-019	Assembly Assembly

Note: Part numbers listed above are "Standard Coil" Part numbers.

CORONADO MODELS TV2-9545A, -9550A, -9555A, -9557A, -9560A, -9562A, -9564A, -9566A

FOLDER 1



VHF TUNER 25A1185 OR 25A1189

TUNER PARTS LIST AND DESCRIPTIONS

25A1187

TUBES

• CBS • GENERAL ELECTRIC • RAYTHEON • SYLVANIA •						
ITEM No.	USE	TYPE		ITEM No.	USE	TYPE
V201	RF Amplifier	2ER5/GG		V202	Mixer-Osc.	5CG8

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	27 N750 10%		N750-DI 25	TCZ-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C202	27 N750 10%		N750-DI 25	TCZ-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C203	27 N750 10%		N750-DI 25	TCZ-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C204	27 N750 10%		N750-DI 25	TCZ-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C205	30							
C206	28		DI-27	DD-270	C10Q27C	CCTO-270	CNO-427	10TS-Q27
C207	1000		EF-001	MFT-1000		CCF-001	CT250A	
C208	1.8-7.0			829-7				
C209	100		EF-0001	MFT-100				
C210	.5-3.5							
C211	.5-3.5							
C212	33		NPO-DI 33	DTZ-33		CCTO-330	GP433	10TS-Q33
C213	18		DI-18	DD-180	L10Q33	CCD-180	CNO-418	10TS-Q33
C214	7.25			DD-7R5	L10V8		GP580	5GA-V75
C215	1000		EF-001	MFT-1000		CCF-001	CT250A	
C216	1000		EF-001	MFT-1000		CCF-001	CT250A	
C217	1000		EF-001	MFT-1000		CCF-001	CT250A	
C218	1000		EF-001	MFT-1000		CCF-001	CT250A	
C219	1000		EF-001	MFT-1000		CCF-001	CT250A	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

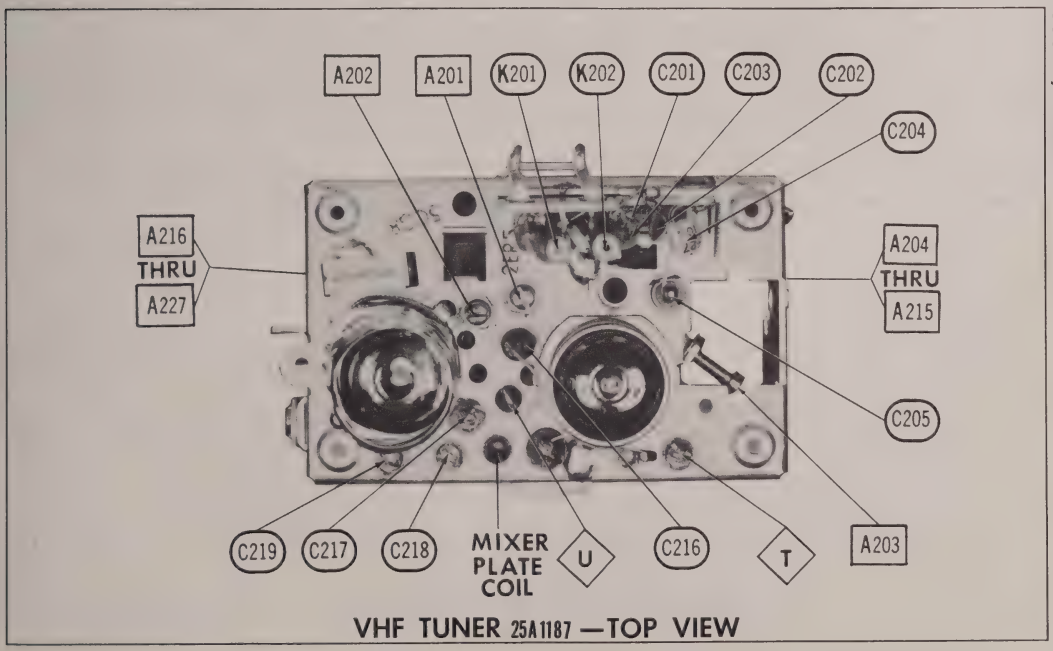
ITEM No.	RATING	REMARKS
R201	47K	
R202	1000Ω	
R203	2700Ω	

ITEM No.	RATING	REMARKS
R204	220K	
R205	1000Ω	
R206	4700Ω	

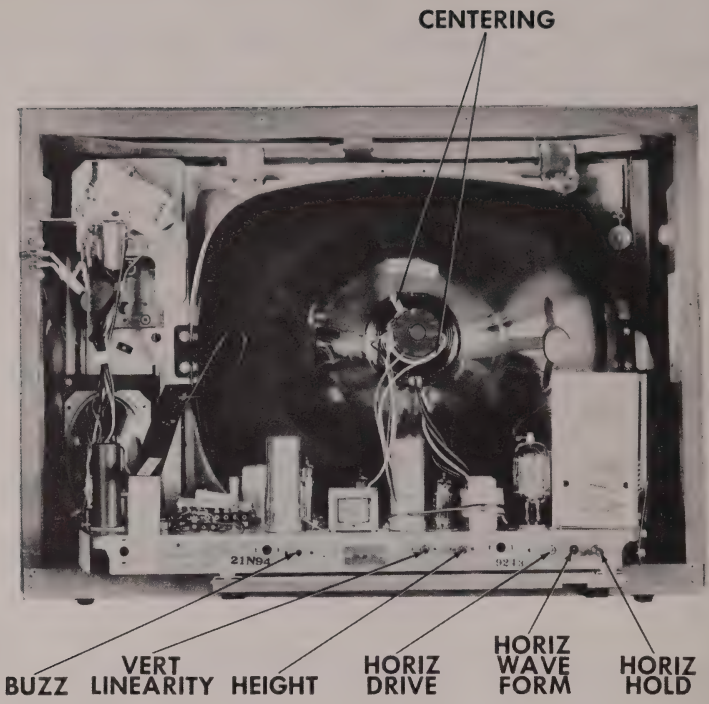
ITEM No.	RATING	REMARKS
R207	4700Ω	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	PART No.	REPLACEMENT DATA
K201	Antenna Filter	470mmf, .3-1meg		Centralab RC-471 Sprague AC1-1
K202	Antenna Filter	470mmf, .3-1meg		Centralab RC-471 Sprague AC1-1



VHF TUNER 25A1187 —TOP VIEW



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Suggested Alignment Tools:
B1 .... 1/4" Nut Driver
B2 .... GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545

Tune in a station and adjust the Horizontal Hold until the picture is just about to tear out of sync as can be seen at the top of the picture.

Turn the Contrast control fully counterclockwise and Brightness control clockwise so that the picture appears washed out. Turn the Horizontal Drive trimmer (B1) clockwise until white vertical bars (drive lines) appear in the left center portion of the raster, then counterclockwise until the white bars just disappear.

Connect the vertical amplifier of a scope to point ⓒ. Low side to chassis. Adjust the Horizontal Waveform slug (B2) until the round and sharp peaks of the waveform are equal in amplitude. See Fig. 4. Keep the picture in sync during this adjustment.

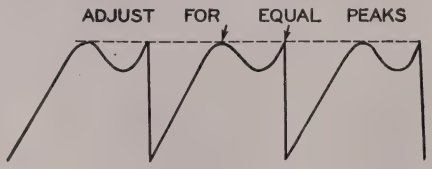


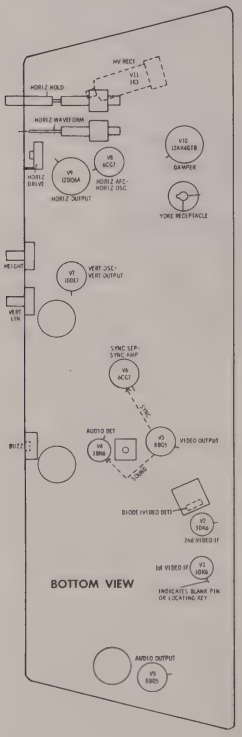
FIG. 4

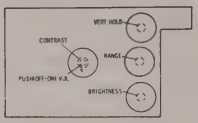
RESISTANCE MEASUREMENTS

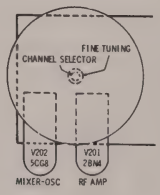
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3DK6	800K	56Ω	12.5Ω	11.5Ω	†10K	†10K	0Ω		
V2	3DK6	.1Ω	150Ω	11.5Ω	10.5Ω	†3000Ω	†3000Ω	0Ω		
V3	8BQ5	• 1meg	• 1meg	• 140Ω	18Ω	16Ω	NC	†3600Ω	NC	†2500Ω
V4	3BN6	• 250Ω	6Ω	10Ω	10.5Ω	.†7200Ω	4.6Ω	†330K		
V5	8BQ5	100Ω	100Ω	150Ω	20Ω	18Ω	NC	†850Ω	NC	†470Ω
V6	6CG7	†1.5meg	2.2meg	0Ω	14.5Ω	16Ω	†14K	40K	0Ω	0Ω
V7	10DE7	†400Ω	2.2meg	2.2meg	12.5Ω	14.5Ω	• †2meg	• 900K	160Ω	• 1800Ω
V8	6CG7	†56K	410K	0Ω	6Ω	4.5Ω	†0Ω	1.5meg	410K	0Ω
V9	12DQ6A	0Ω	7.5Ω	TP	†80K	470K	NC	10Ω	0Ω	TOP CAP †10Ω
V10	12AX4GTB	TP	NC	¶350K	NC	†.2Ω	TP	2Ω	4.5Ω	
V11	1K3	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP †305Ω
V12	21CBP4A	7.5Ω	• 22K	Pin 6 †100K	Pin 10 †10meg	Pin 11 • 300K	Pin 12 6Ω			
V201	2BN4	0Ω	5000Ω	0Ω	.5Ω	†3500Ω	0Ω	5000Ω		
V202	5CG8	10K	†15K	0Ω	2Ω	.5Ω	†3500Ω	†11K	0Ω	320K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM 270V SOURCE.
‡ MEASURED FROM PIN 3 OF V10.

NC NO CONNECTION
TP TIE POINT







TUBE PLACEMENT CHART

PHOTOFACT® Folder with CIRCUITRACE®

MOTOROLA MODELS Y17P6-1, -2, -3, 17P6-1, -2, -3 (CH. TS-433, TS-433Y)

MOTOROLA MODELS Y17P6-1, -2, -3, 17P6-1, -2, -3 (CH. TS-433, TS-433Y)

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

MOTOROLA MODELS Y17P6-1, -2, -3, 17P6-1, -2, -3 (CH. TS-433, TS-433Y)

MODEL Y17P6-1 (CH. TS-433Y)

SET 488 FOLDER 2

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

MOTOROLA MODELS Y17P6-1, -2, -3, 17P6-1, -2, -3 (CH. TS-433, TS-433Y)

MOTOROLA MODELS Y17P6-1, -2, -3, 17P6-1, -2, -3 (CH. TS-433, TS-433Y)

DISASSEMBLY INSTRUCTIONS

CABINET REMOVAL MODEL Y17P6-1

1. Remove 8 push-on type knobs (4 from top of cabinet and 4 on side of cabinet).
2. Remove 6 metal screws holding rear cover. Remove rear cover.
3. To remove wraparound cabinet, place on side opposite the controls and remove 4 metal screws at bottom of cabinet.
4. Remove 2 metal screws at top of cabinet near handle. Remove isolation network and speaker leads.
5. Place the cabinet face down. Remove cabinet by pulling straight up.

PICTURE TUBE REMOVAL

1. Follow steps 1 thru 5 of "Cabinet Removal".
2. Remove 4 bolts holding safety glass mask. Remove the mask and safety glass.
3. Remove picture tube socket, hi voltage lead, yoke plug, and yoke.
4. Remove 2 screws on each side of cabinet in front.
5. Remove picture tube straight out front.

MODEL Y17P6-1 (CH. TS-433Y)

CAUTION

ONE SIDE OF AC LINE CONNECTED TO CHASSIS.

TRADE NAME	Motorola	MODELS	CHASSIS
		17P6-1, 17P6-2, 17P6-3	TS-433
		Y17P6-1, Y17P6-2, Y17P6-3	TS-433Y
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois		
TYPE SET	Portable Television Receiver		
TUBES	VHF - Fifteen, UHF - Sixteen		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING	170 Watts, 1.6 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

For safety glass removal, it is necessary to remove the chassis. (See "Disassembly Instructions".)

FUSE DEVICE

A Circuit Breaker (Circuit Guard) is used for low voltage power supply protection, and may be reset by depressing reset button. (For location, see "Tube Placement Chart".)

TUNER OSCILLATOR ADJUSTMENTS

To touch-up the VHF Oscillator, it is necessary to remove the chassis. (See "Disassembly Instructions".)

AGC

No provision is made to vary the AGC on this receiver.

FOCUS

The focus may be varied by connecting the lead from pin 4 of the picture tube to various voltage points. (For location, see photo "Printed Board" page 7.)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

The Horizontal Frequency Slug is used for the Horizontal Hold. (For location, see "Tube Placement Chart".)

WIDTH

The width may be varied by a Horizontal Size Control.

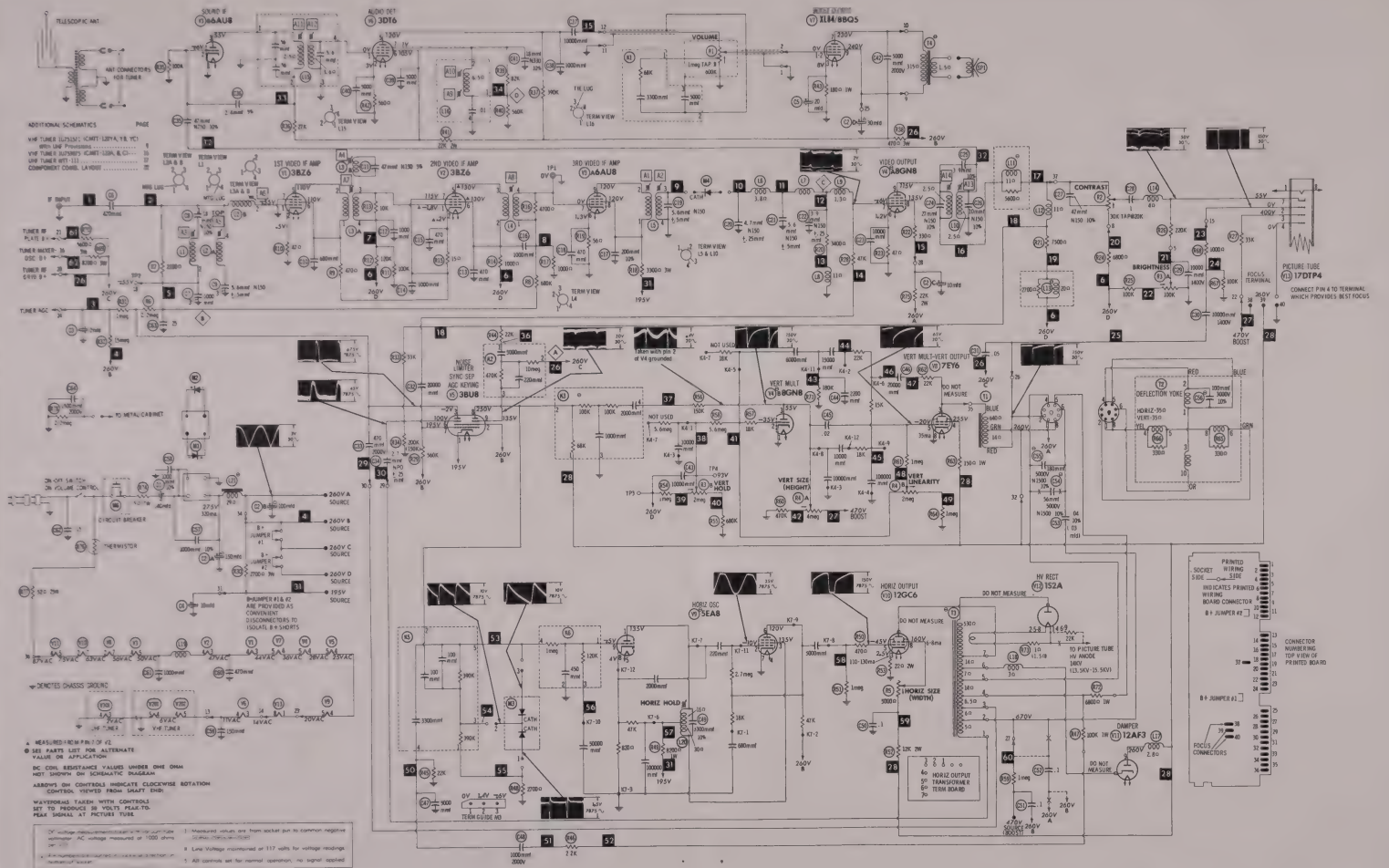
CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

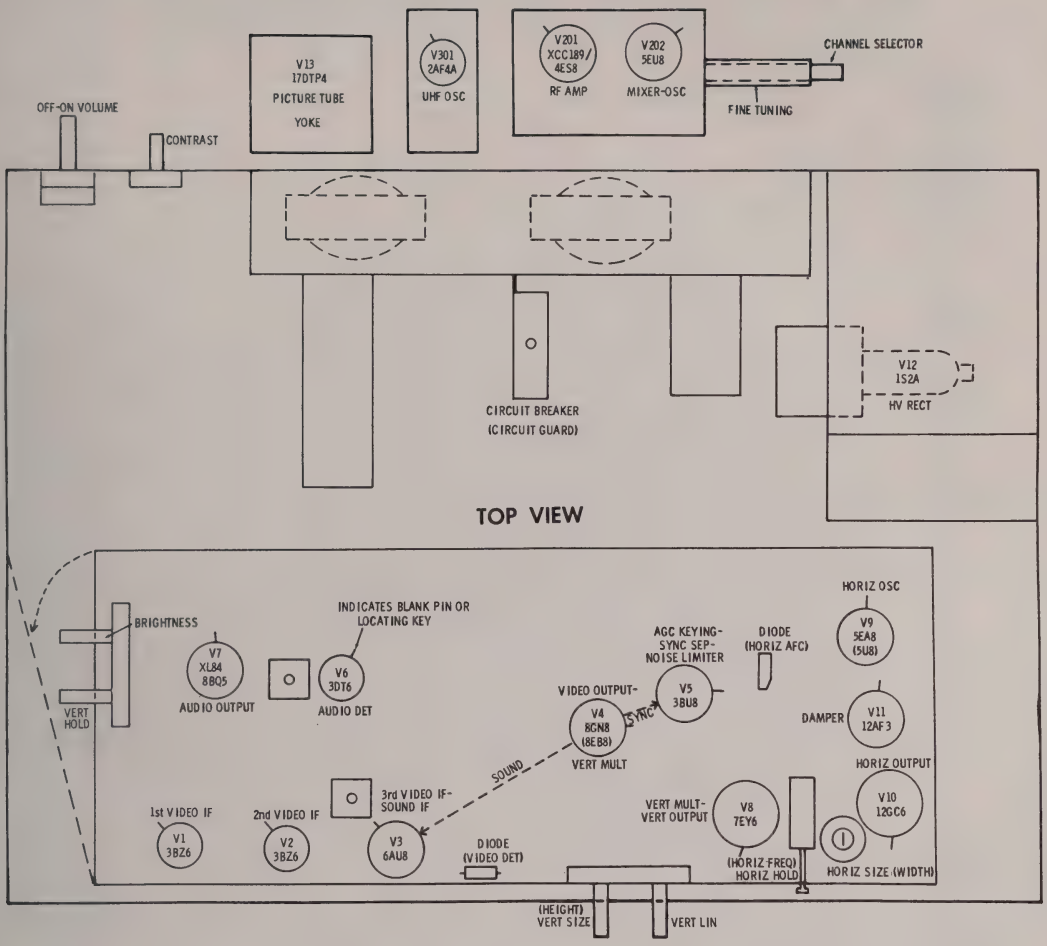
HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

JA962


MOTOROLA MODELS Y17P6-1, -2, -3, 17P6-1, -2, -3 (CH. TS-433, TS-433Y)
MOTOROLA MODELS Y17P6-1, -2, -3, 17P6-1, -2, -3 (CH. TS-433, TS-433Y)
FOLDER 2
PAGE 2
PAGE 23

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

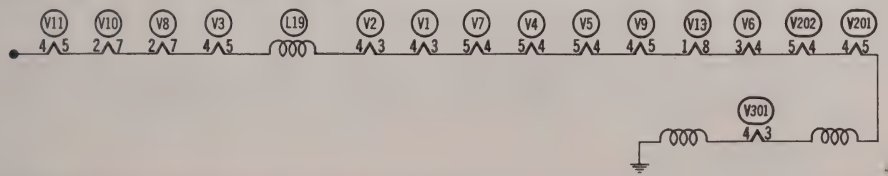
POWER SUPPLY FAILURE
No raster, no sound Circuit Breaker, Rectifiers (B+)

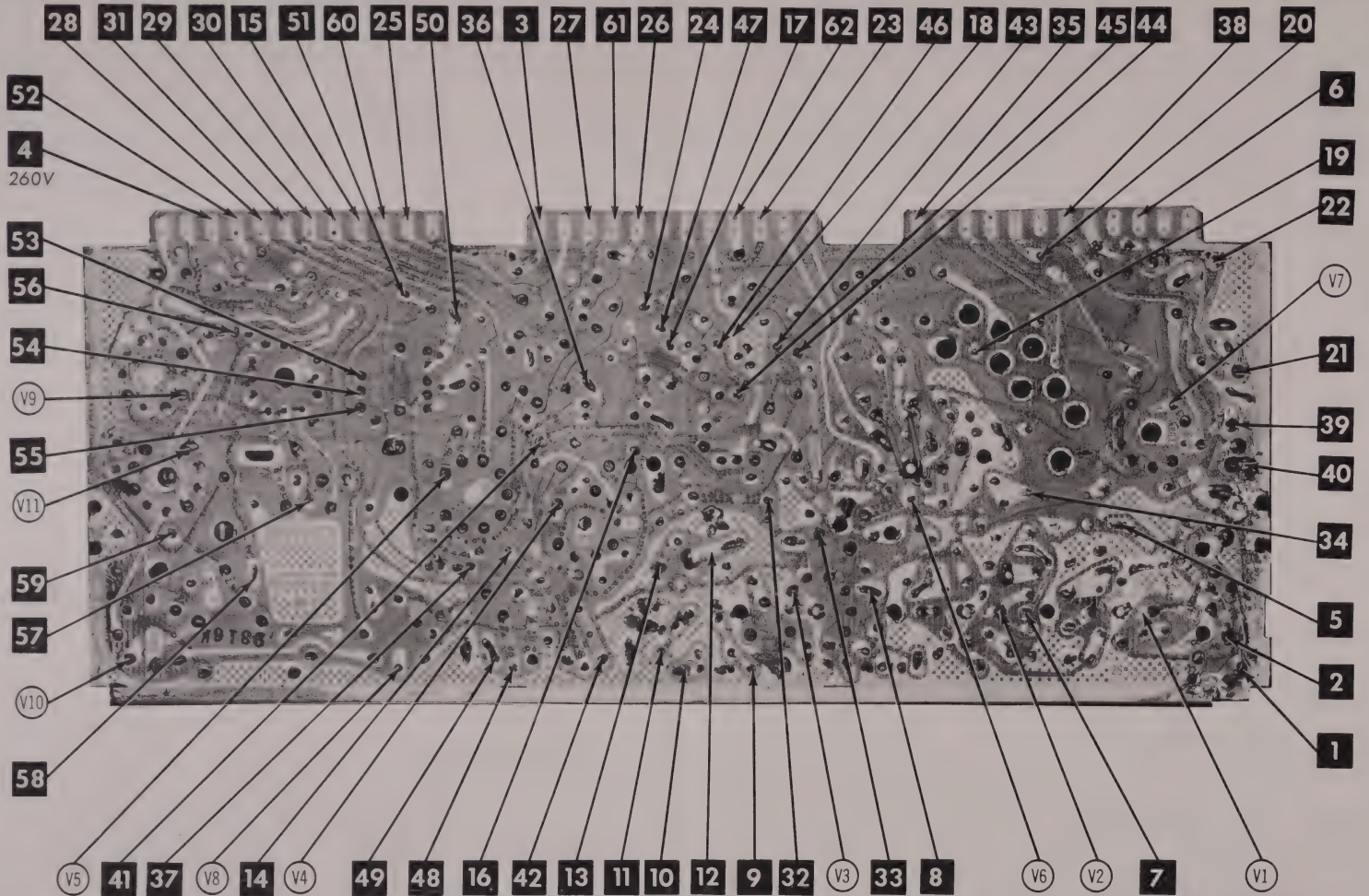
SWEEP FAILURE
No raster, has sound V9, V10, V11, V12, V13
No vertical deflection V4, V8
Poor vert. linearity or foldover V4, V8
Poor horiz. linearity or foldover V9, V10, V11
Narrow picture V9, V10, V11, Rectifiers (B+)
Vert. off freq. V4
Horiz. off freq. Diode (Horiz. AFC), V10

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V13
Has pic, no sound V3, V6, V7
Overloaded picture V5

SYNC FAILURE
No vert. sync V5
No horiz. sync V5
No vert. or horiz. sync V5

This receiver employs tubes used in a series filament network, an open filament in any tube will cause the set to be inoperative. (See circuit below.)





A Howard W. Sams CIRCUITFACE Photo

PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

MOTOROLA MODELS Y17P6-1, -2, -3, 17P6-1, -2, -3 (CH. TS-433, TS-433Y)

PRINTED BOARD - RESISTOR IDENT.

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A1 thru A14 ..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
Mixer Plate Coil ..... GENERAL CEMENT #9296, 9297
WALSCO #2546, 2547

VIDEO IF ALIGNMENT

Short the grid of the tuner Oscillator tube to chassis.
Remove the deflection yoke and connect a 1500 ohm 50 watt resistor from point Ⓐ to chassis. CAUTION: Point Ⓐ has B+ voltage on it.
Set Contrast control fully counterclockwise.
Short the antenna terminals together but not to chassis.
Connect the negative lead of a 4.5 volt bias supply to point Ⓑ. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscpe for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	High side thru .001mfd to TP-1. Low side to chassis.	44.0MC (10MC Swp.)	45.75MC	13	Vert. Amp. thru 47K to point Ⓒ. Low side to chassis. (Across Video Det. load.)	A1, A2	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
2.	Place a thin insulated metal strip between the Mixer-Osc. tube and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	"	47.25MC	"	"	A3, A4	Adjust to place marker in trap notch. (Slug away from chassis.)
3.	"	"	41.25MC	"	"	A5	"
4.	"	"	44.0MC	"	Vert. Amp. thru Demodulator probe to pin 5 (plate) of 1st Video IF Amp. Low side to chassis.	Mixer Plate Coil and A6	Set generator for 3 volts peak to peak on scope. Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown. Mixer Plate Coil affects center peak and A6 affects outside peaks.
5.	"	"	42.25MC 45.75MC	"	Vert. Amp. thru 47K to point Ⓒ. Low side to chassis.	A7, A8	Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown. Adjust A7 to place 42.25MC marker at 60% and A8 to place 45.75MC marker at 50%. If necessary, retouch Mixer Plate Coil to correct for tilt.

SOUND IF ALIGNMENT

Tune in a strong TV signal and adjust controls for normal picture and sound. Connect the DC probe of VTVM to point Ⓓ. Common to chassis. Adjust A9 for maximum deflection choosing the one of the two peaks which produces the highest deflection on the meter. While listening to the sound, retouch A9 for maximum volume and MINIMUM distortion. A10 (which is the top slug in the Quadrature coil) is a preset slug which is set near the top of the coil form and left there. Change to a very weak signal (this may be done by disconnecting the antenna lead from the antenna terminals and placing the leads nearby for loose coupling) that produces a hiss in the sound. Adjust A11 and A12 for maximum sound and MINIMUM distortion. Adjust A13 for maximum undistorted sound. If the sound is not clear at this point, repeat the entire procedure.

4.5MC TRAP ALIGNMENT

Tune in a strong TV signal and turn Contrast up. Adjust the Fine Tuning until a strong 4.5MC beat pattern is visible in the picture. Adjust A14 to find the two peaks at which the beat pattern is just noticeable. Tune the slug to the center of these two points. (Use MINIMUM inductance that will result in no apparent beat pattern).

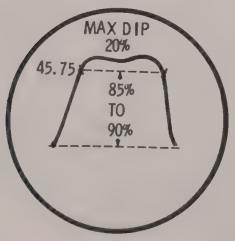


FIG. 1

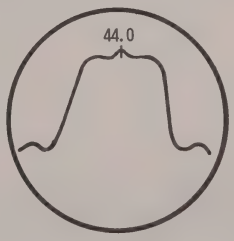


FIG. 2

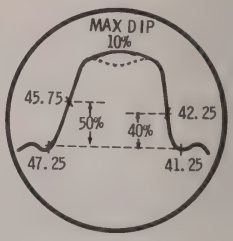
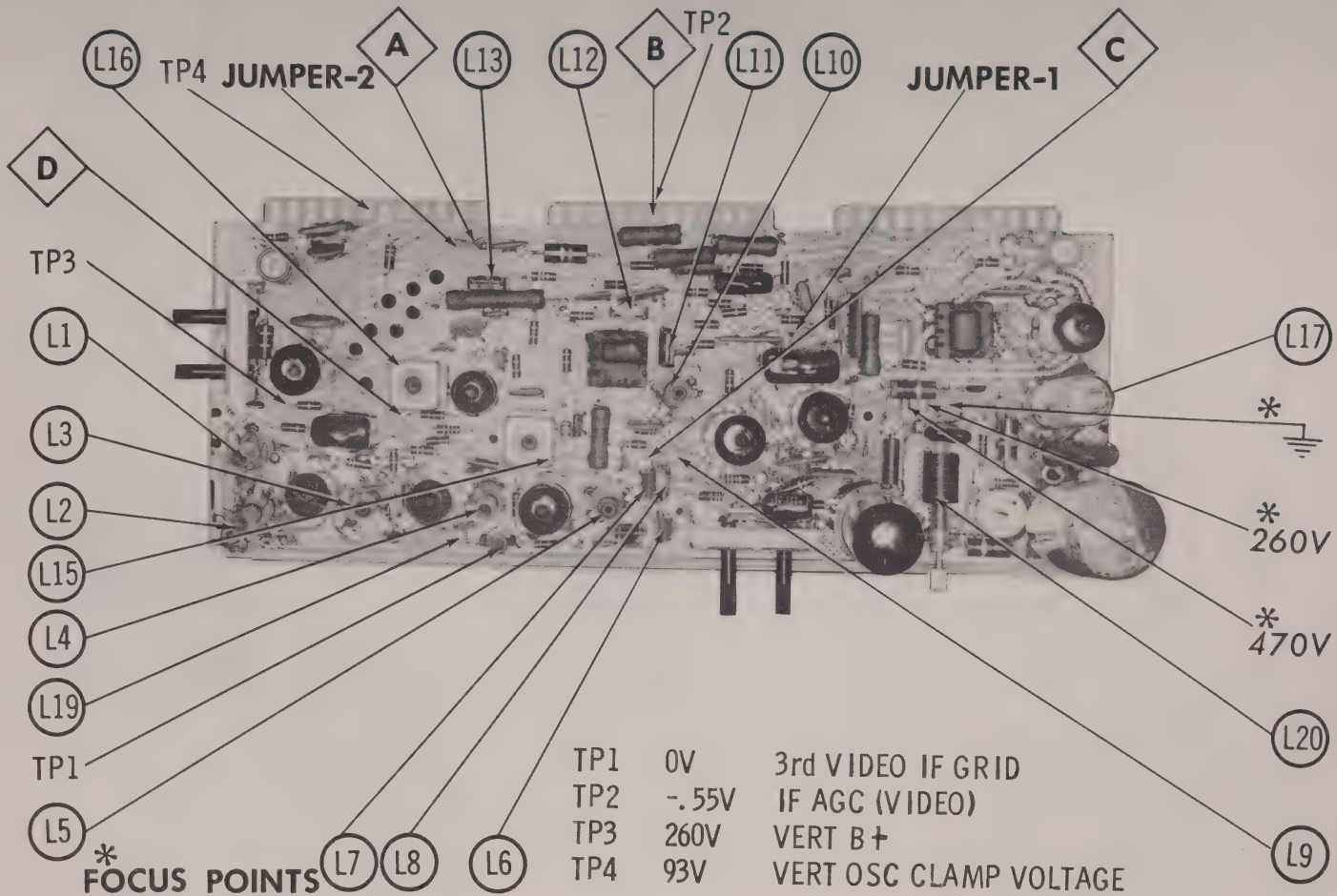


FIG. 3

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGES 8, 17



PRINTED BOARD-ALIGN., INDUCTOR, & TEST POINT IDENT.

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Remove the deflection yoke plug to prevent interference radiation. Connect a 1500Ω 50 watt resistor from pin 3 to pin 5 of the Service Test Receptacle.
DO NOT remove the tuner cover.
Suggested Alignment Tools: A206, A207 ..... GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2525
A208 thru A213... GENERAL CEMENT #9296, 9297
WALSCO #2546, 2547

VHF RF AND MIXER ALIGNMENT

Connect a clip lead from point Ⓣ to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.
Preset A206 and A207 so top of screw is .35" above tuner chassis.
Use 10MC sweep unless otherwise noted.

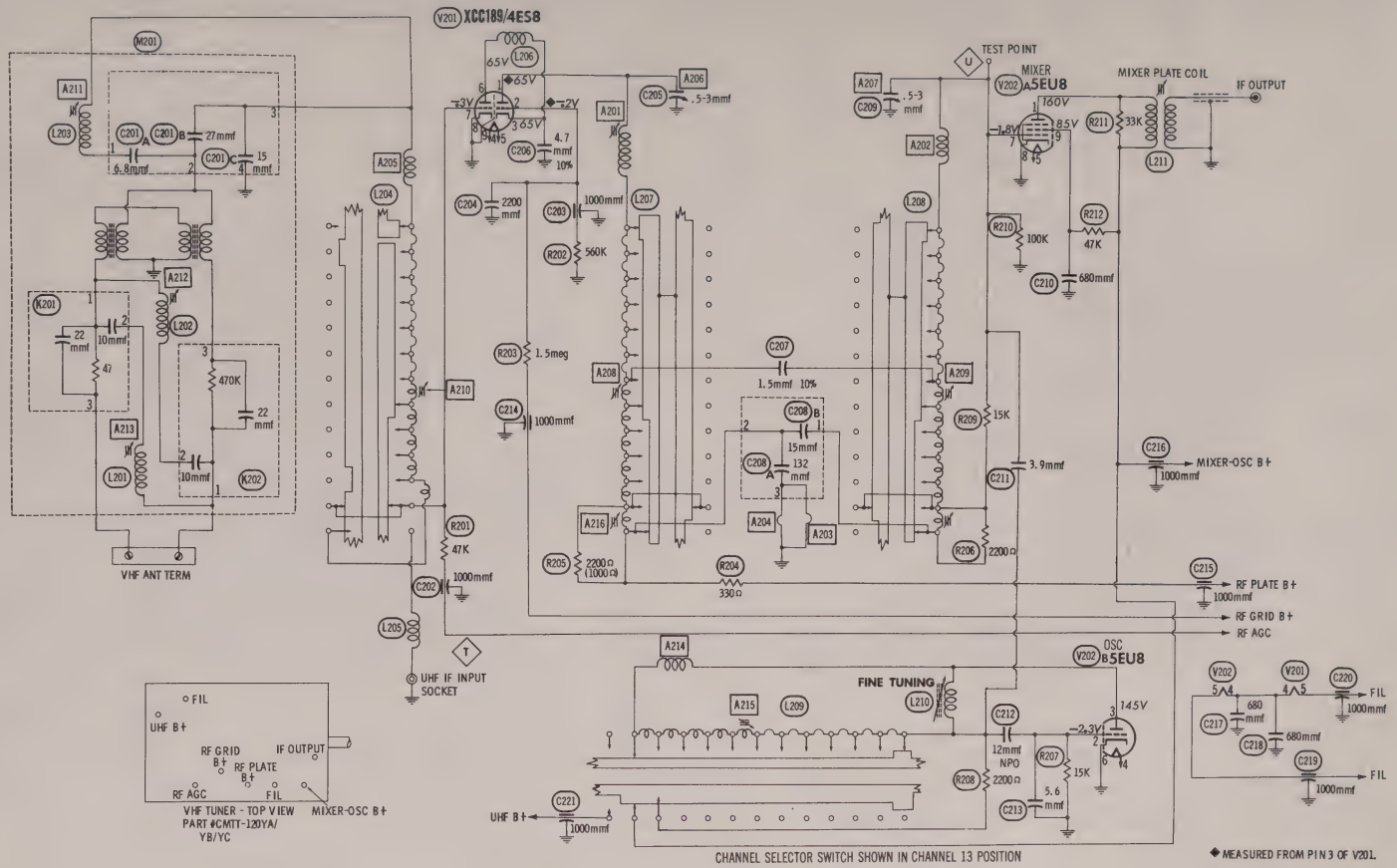
	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47K to point Ⓤ. Low side to chassis.	A201, A202	Adjust for maximum gain and symmetry of response similar to Fig. 201 with markers as shown.
2.	"	"	"	"	"	"	A203, A204	Adjust for proper bandwidth as in Fig. 201.
3.	"	"	"	"	"	"	A205	Adjust for maximum amplitude and MINIMUM tilt.
4.	"	"	177MC	175.25MC 179.75MC	7	"	A206, A207	Adjust A206 for proper marker position. Adjust A207 for MINIMUM tilt.
5.	"	"	85MC	83.25MC 87.75MC	6	"	A208, A209, A210	Adjust A208 to place 83.25MC marker on or near peak, A209 to place 87.75MC marker on or near other peak and A210 for maximum gain and MINIMUM tilt.
6.	"	"	"	94MC	"	"	A211	Adjust for MINIMUM response at marker or until it just starts to affect the high frequency side of response curve. NOTE : A211 may be adjusted to trap out interference between 85 and 108MC. However, make certain that no part of a desired channel is trapped out.
7.	"	"	79MC	77.25MC 81.75MC	5	"		Check for response similar to Fig. 201. If necessary make compromise adjustment of A208, A209 and A210 for proper curve on each channel.
			69MC	67.25MC 71.75MC	4			
			63MC	61.25MC 65.75MC	3			
			57MC	55.25MC 59.75MC	2			
8.	"	"	57MC	43.5MC 45.5MC	2	"	A212, A213	Adjust A212 for MINIMUM response at 43.5MC marker and A213 for MINIMUM response at 45.5MC marker. Retouch either or both for flat response consistent with MINIMUM amplitude at trap frequencies.

VHF OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the Fine Tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	215.75MC	13	Vert. Amp. thru 47K across Video Det. load	A214	Adjust to place marker in trap notch as in Fig. 202.
10.	"	"	207MC	209.75MC	12	"		Marker must fall into trap notch on each channel within plus or minus 750KC of specified marker frequency. If not, make compromise adjustment of A214 for all high band channels.
			201MC	203.75MC	11			
			195MC	197.75MC	10			
			189MC	191.75MC	9			
			183MC	185.75MC	8			
			177MC	179.75MC	7			
11.	"	"	85MC	87.75MC	6	"	A215	Adjust to place marker in trap notch as in Fig. 202.
12.	"	"	79MC	81.75MC	5	"		Marker must fall into trap notch on each channel within plus or minus 750KC of specified marker frequency. If not, make compromise adjustment of A215 for all low band channels.
			69MC	71.75MC	4			
			63MC	65.75MC	3			
			57MC	59.75MC	2			

CONTINUED ON PAGE 17



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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VHF TUNER with UHF Provisions - 1U751571(CMTT-120YA, YB, YC)

MOTOROLA MODELS V17P6-1, -2, -3, 17P6-1, -2, -3 (CH. TS-433, TS-433V)

VHF TUNER PARTS LIST AND DESCRIPTIONS

CMTT-120YA,YB,YC

TUBES

• CBS • GENERAL ELECTRIC • RAYTHEON • SYLVANIA •					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	XCC189/4ES8	V202	Mixer-Osc.	5EU8

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201A	6.8	†	NPO-DI 6.8	DTZ-6R8	C10V68C	CCTO-6R8	CNO-568	10TCC-V68
B	27		NPO-DI 25	TCZ-27	C10Q27C	CCTO-270	CNO-427	10TCC-Q27
C	15		NPO-DI 15	DTZ-15	C10Q15C	CCTO-150	CNO-415	10TCC-Q15
C202	1000		EF-001	MFT-1000		CCF-102	CT280A	
C203	1000		EF-001	MFT-1000		CCF-102	CT280A	
C204	2200		BPD-0022	DD-222	BYA10D22	CCD-222	GP222	5HK-D22
C205	.5-3			829-3		CV-1	CT565	
C206	4.7 10%		NPO-SI 4.7	TCZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C207	1.5 10%		NPO-SI 1.5	TCZ-1R5	C10V15C		CNO-515	10TCC-V15
C208A	132	#51K752032						
B	15							
C209	.5-3			829-3		CV-1	CT565	
C210	680		DI-680	DD-681	BYA10T68	CCD-681	GP368	10TS-T68
C211	3.9				C10V4C			10TCC-V39
C212	12 NPO			TCZ-12	C10Q12C	CCTO-120	CNO-412	10TCC-Q12
C213	5.6							10TCC-V56
C214	1000		EF-001	MFT-1000		CCF-102	CT280A	
C215	1000		EF-001	MFT-1000		CCF-102	CT280A	
C216	1000		EF-001	MFT-1000		CCF-102	CT280A	
C217	680		DI-680	DD-681	BYA10T68	CCD-681	GP368	10TS-T68
C218	680		DI-680	DD-681	BYA10T68	CCD-681	GP368	10TS-T68
C219	1000		EF-001	MFT-1000		CCF-102	CT280A	
C220	1000		EF-001	MFT-1000		CCF-102	CT280A	
C221	1000		EF-001	MFT-1000		CCF-102	CT280A	

Motorola Part No. † Part of M201.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R201	47K	
R202	560K	
R203	1.5 meg	
R204	330Ω	

ITEM No.	RATING	REMARKS
R205	2200Ω	(1000Ω)*
R206	2200Ω	
R207	15K	
R208	2200Ω	

ITEM No.	RATING	REMARKS
R209	15K	
R210	100K	
R211	33K	
R212	47K	

Note 1. Some versions may use 1000Ω in this application. *Alternate

COILS (RF-IF)

ITEM No.	USE	MOTOROLA PART No.	NOTES
L201	40MC Trap	24K751655 †	
L202	40MC Trap	24K751655 †	
L203	FM Filter	24K752270 †	
L204	Ant. Coils	1V751568	Channel 2-13, Includes Wafer Assy.
L205	UHF Input Coil	24K753691	
L206	RF Choke	24K752262	
L207	RF Coils	1V753361	Channel 2-13, Includes Wafer Assy.

ITEM No.	USE	MOTOROLA PART No.	NOTES
L208	Mixer Grid Coils	1V753362	Channel 2-13, Includes Wafer Assy.
L209	Osc. Coils	1V753555	Channel 2-13, Includes Wafer Assy.
L210	Fine Tuning	1V749008	Includes Front Plate Assy.
L211	Mixer Plate Coil	24B747838	

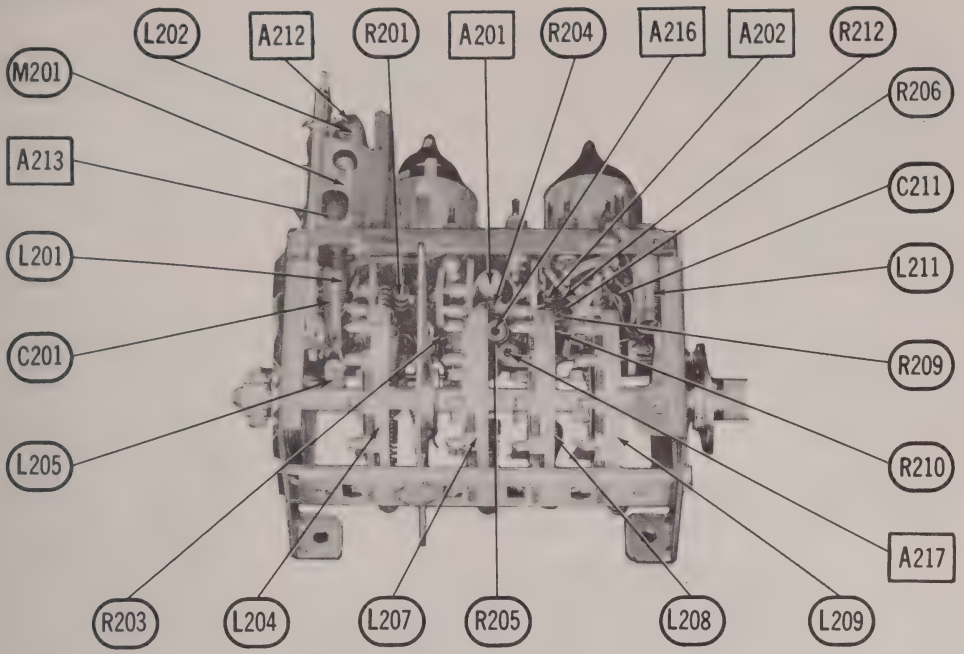
† Part of M201.

COMPONENT COMBINATIONS

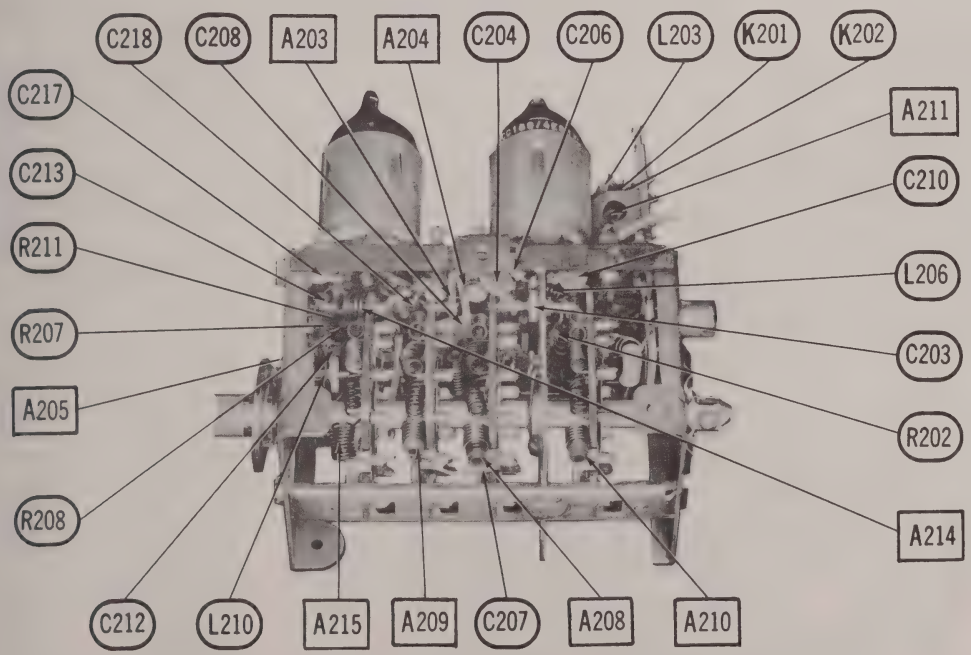
ITEM No.	USE	DESCRIPTION	MOTOROLA PART No.	REPLACEMENT DATA
K201	Antenna Filter (40MC)	10mmf, 22mmf, 470K	51C747535 †	† Part of M201
K202	Antenna Filter (40MC)	10mmf, 22mmf, 470K	51C747535 †	

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M201	Hi Pass Filter	1V751664	Complete Assembly



VHF TUNER 1U751571(CMTT-120YA, YB, YC) - LEFT SIDE



VHF TUNER 1U751571(CMTT-120YA, YB, YC) -RIGHT SIDE

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	CBS • GENERAL ELECTRIC USE	TYPE	ITEM No.	RAYTHEON • SYLVANIA USE	TYPE
V1	1st Video IF Amp.	3BZ6	V6	Audio Det.	3DT6
V2	2nd Video IF Amp.	3BZ6	V7	Audio Output	XL84, 6BQ6
V3	3rd Video IF Amp - Sound IF Amp.	6AU8	V8	Vert. Mult. - Vert. Output	7EY8
V4	Video Output-Vert. Mult.	6CM8 (6BS8)*	V9	Horiz. Osc.	5AA8 (6U8) *
V5	AGC Keying-Sync Sep. - Noise Limiter	3BU8	V10	Horiz. Output	6BK7B
			V11	Damper	12AY3
			V12	HV Rect.	1B3A

* Alternate.

PICTURE TUBE

ITEM No.	REPLACEMENT DATA MOTOROLA PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
V13	17DTP4				17DTP4 ①	① Silver Screen "85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	VOLT.	REPLACEMENT DATA MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	160	150	23 KT5301	AJ 82R-13-05	XA0355	FP1U1.5	TMS-34	TVL-1430	
C1A	.150	300	23 KT5304	AJ 84-94-04 ☐	C0023S ☐	FP4U0.55 ☐		TVL2-4587.3*	
B	●100	300			BR3035 ☐	TC65			
C	10	300							
D	430	300							
C2	2	10	23 KT4342	PRB300	BBR3-50	TC302	TD-2-25	TVA-1301	
C3	100	25	23 KT5719	PRB230	BR1040	TC32	TD-10-450	TVA-1804	
C3	30	25	23 KT5319	PRB330	BBR30-25	TC36	TD-30-150	TVA-1710	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	470		BPD-00047	DD-471	BYA10T47	CCD-471	GP347	10TS-T47
C7	1000		BPD-001	DD-102	BYA10I2	CCD-102	GP210	54K-D10
C8	15 NI50 10%	#2KR10678				*		10TCP-Q18
C9	5.6 NI30 ± .5mmf	#2KR10694				*		
C10	680		BPD-00068	DD-681	BYA10T68	CCD-681	GP368	10TS-Q68
C11	47 NI80 5%	#2KR39731				*		10TCP-Q47
C12	1000		BPD-001	DD-102	BYA10I1	CCD-102	GP210	10TS-D10
C13	470		BPD-00047	DD-471	BYA10T47	CCD-471	GP347	10TS-T47
C14	1000		BPD-001	DD-102	BYA10I2	CCD-102	GP210	54K-D10
C15	470		BPD-00047	DD-471	BYA10T47	CCD-471	GP347	10TS-T47
C16	1000		BPD-001	DD-102	BYA10I1	CCD-102	GP210	54K-D10
C17	300 10%		D5-300	D-301	L107S	CCD-301	GP330	10TS-T30
C18	470		BPD-00047	DD-471	BYA10T47	CCD-471	GP347	10TS-T47
C19	5.6 NI30 ± .5mmf	#2KR39734				*		
C20	4.7 NI30 ± .25mmf	#2KR39735				*		10TCP-V50
C21	5.6 NI30 ± .5mmf	#2KR39734				*		
C22	3.9 NI30 ± .25mmf	#2KR39736				*		
C23	10000		BPD-01	DD-103	BYA10I1	CCD-103	GP110	54K-S10
C24	27 NI50 10%	#2KR39733				*		10TCP-Q27
C25	3.9	10%			C10V4C	*		
C26	10 NI30 10%	#2KR39088				*		10TCP-Q10
C27	47 NI50 10%	#2KR39471				*		10TCP-Q47
C28	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1
C29	10000 1400V		DAC-37	DDS-103	BYD5S1	16DP-3-103	UAC-110	BL-S10
C30	10000 1400V		DAC-37	DDS-103	BYD5S1	16DP-3-103	UAC-110	BL-S10
C31	.05 600V		P488H-05	DD-503	CUB4S	6DP-3-503	GEM-415	4TM-S5
C32	30000		BPD-02	DD-303	BYD5S2	CCD-303	GP130	54K-S30
C33	470 2000V		BVD-30-470	DD30-471	BYB30T47	3CCD-471	MY-347	30GA-T47
C34	2.7 NP0 ± .25mmf	#2KR39737				*		10TCC-V27
C35	47 N750 10%		N750-D1 47	DTN-47	C10Q47U	CCTH-470	CNT-447	10TCU-Q47
C36	2.4	5%				*		
C37	10000		BPD-01	DD-103	BYA10I1	CCD-103	GP110	54K-S10
C38	1000		BPD-001	DD-102	BYA10I1	CCD-102	GP210	54K-D10
C39	1000		BPD-001	DD-102	BYA10I6	CCD-502	GP250	54K-D50
C40	5000		BPD-008	DD-502	BYA10D8	CCD-502	GP250	54K-D50
C41	18 NI30 10%	#2KR39733				*		10TCP-Q18
C42	5000 3000V			DD30-502	BYC30D6	3CCD-502	MY-347	BL-D50
C43	10000		BPD-01	DD-103	BYA10I6	CCD-103	GP110	54K-S10
C44	2200		BPD-0022	DD-222	BYA10G22	CCD-222	GP222	54K-D22
C45	.02 600V		P488N-03	DD-203	CUB6S2	6DP-3-203	GEM-623	6TM-S20
C46	30000		BPD-03	DD-303	BYD5S3	CCD-303	GP130	54K-S30
C47	5000		BPD-005	DD-502	BYA10D6	CCD-502	GP250	54K-D50
C48	1000 3000V		BVD-30-1000	DD30-102	BYB30D1	3CCD-103	MY-350	BL-D10
C49	.006 10%		1464-0033		1N5283	CM-20B-332K	1N2462	MS-S33
C50	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1
C51	.1 600V		P488M-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P1
C52	.1 600V		P488N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P1
C53	.04 400V 10%	(.03mfd) †	V64C684-10%		FM684	4DP-3-403	GEM-1614	4TM-S4
C54	68 2000V NI500 10%	#2KR25538 ☐						
C55	180 3000V NI500 10%	#2KR25513 ☐						
C56	.002 3000V 10%	②						
C57	1000	10%	DI-100	DD-102	1R5D1	CCD-102	GP210	10TS-D10
C58	1000	10%	DI-1000	DD-102	1R5I6	CCD-102	GP210	10TS-D10
C59	1000	10%	BPD-00051	DD-181	L107I5	CCD-181	GP315	10TS-T15
C60	470		BPD-00047	DD-471	BYA10T47	CCD-471	GP347	10TS-T47
C61	1000		BPD-001	DD-102	BYA10I2	CCD-102	GP210	54K-D10
C62	.15 600V		P488N-15		CUB4P15	4DP-4-154	GEM-415	4TM-P15
C63	.15 50V		P286N-39		CUB2P15	1DP-3-254	GEM-3025	2TM-P25
C64	1500 2000V		BVD-30-1500	DD30-152	BYB30D15	3CCD-152	MY-325	30GA-D25

♦ Motorola Part Number. † Alternate.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
① Not used in some versions. Some versions may use 100mmf or 99mmf ② 4000V in this application. Replace with 56mmf ③ 5000V.
③ Chassis coded LV-A, -B may use 180mmf ③ 3000V or 160mmf ④ 4000V in this application. Replace with 300V capacitor.
② Some versions may use 82mmf ③ 3000V in this application (Part #2KT53480).

CONTROLS

ITEM No.	RATING RESISTANCE	WATTS	REPLACEMENT DATA MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½	18KT51497					Volume
	500K-Tap							
B	Switch							Power Off-On
R2	10K	½	18KT52018					Contrast
	200 Tap							
R3A	100K	½	18KT51495					Brightness
B	2meg							Vert Hold
R4A	4meg	½	18KT51494					Vert Size (Height)
B	2meg							Vert Linearity
R5	5000Ω	2(WW)	17C751903				PF15K	Horiz Size (Width)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R6	2.2meg	
R7	2200Ω	
R8	680K	
R9	470Ω	
R10	47Ω	
R11	100K	
R12	120K	
R13	10K	
R14	1000Ω	
R15	150	
R16	4700Ω	
R17	1000Ω	
R18	3300Ω 3W	#17KT53312
R19	56Ω	
R20	3400Ω	
R21	7500Ω 4W	#17KT46494
R22	330Ω	
R23	47Ω	
R24	6800Ω	
R25	100K	
R26	220K	
R27	33K	
R28	47K	
R29	560K	
R30	2700Ω 3W	#17KT47594

ITEM No.	RATING	REMARKS
R31	1meg	
R32	15meg	
R33	33K	
R34	200K	(150K) *
R35	100K	
R36	27K	
R37	390K	
R38	470Ω 3W	#17KT53483
R39	82K	
R40	560K	
R41	22K 2W	
R42	560K	
R43	180Ω 1W	
R44	22K	
R45	22K	
R46	22K	
R47	100K 1W	
R48	2700Ω	
R49	8200Ω 1W	
R50	470Ω	
R51	1meg	
R52	12K 2W	
R53	22Ω 2W	
R54	1meg	
R55	680K	

ITEM No.	RATING	REMARKS
R56	150K	
R57	18K	
R58	5.6meg	
R59	1meg	
R60	470K	
R61	1meg	
R62	22K	
R63	150Ω 1W	
R64	1meg	
R65	330Ω	
R66	330Ω	
R67	100K	
R68	1000Ω	
R69	8200Ω 3W	
R70	5600Ω 3W	#17KT53311
R71	180K	
R72	6800Ω 1W	
R73	1Ω	†
R74	5Ω 7W	#17KT52017
R75	22K 2W	#17KT52017
R76	200Ω (Cold)	#16KT46412
R77	5Ω 25W	#17KT53306
R78	2.2meg	

♦ Motorola Part Number. * Alternate. † HV-A Chassis uses 1.5Ω.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	MOTOROLA PART No.	REPLACEMENT DATA
K1	Tone Comp.	3300mmf, 5000mmf, 68K	51KT53304	
K2	Sync Sep Grid	220mmf, 5000mmf, 470K, 10meg	51CT51985	
K3	Vert. Integrator	1000mmf, 2000mmf, 68K, 100K, 100K	51KT52815-A †	
K4	Vert. Sweep	8000mmf, 10000mmf, 10000mmf, 10000mmf, 1800mmf, 100000mmf, 15K, 15K, 18K, 22K, 5.6meg	51KT51863 *	
K5	Horiz. AFC	100mmf, 100mmf, 3300mmf, 390K, 390K	51KT53307	
K6	Horiz. Mult. Grid	450mmf, 180K, 1meg	51KT53308	
K7	Horiz. Sweep	220mmf, 680mmf, 2000mmf, 5000mmf, 5000mmf, 100000mmf, 820Ω, 18K, 47K, 47K, 3.7meg	51KT53301	

† Alternate Part #51KC52818.
* Alternate module unit used in some versions (Part #51KT53520).

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA MOTOROLA PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Rom PART No.	NOTES
L1	47.25MC Trap	24CT51955	17-4538	17-4538	TV-153	6225		
L2A	41.25MC Trap	24CT51956						
B	1st Video IF							
L3A	2nd Video IF	24CT51951	17-4536	17-4536	TV-128	6222		
B	47.25MC Trap							
L4	3rd Video IF	24CT51953	17-4534	17-4534	TV-130	6219	VF-4	
L5	4th Video IF	24CT51954	17-4534	17-4534	TV-130	6219	VF-4	
L6	Resonant Choke	24KT53543						9.1uh
L7	Resonant Choke	24KT53544						1.5uh
L8	Shunt Peaking Coil	24KT51487	19-3500	19-3500	TV-168	6174	VF-8	500uh
L9	Resonant Choke	24R119889						8.5uh
L10A	4.5MC Trap	24CT53249						
B	1st Sound IF							
L11	Series Peaking Coil	24KT53479	19-3250 *	19-3250 *	TV-185 *	6181 *	VF-9 *	360uh ①
L12	Shunt Peaking Coil	24KT51487	19-3500	19-3500	TV-168	6174	VF-8	500uh
L13	Shunt Peaking Coil	24KT53306	19-4840 ▲	19-4840 ▲	TV-207▲	6186 ▲		880uh ②
L14	Series Peaking Coil	24KT50835	19-3100	19-3100	TV-194	6213		100uh
L15	2nd Sound IF	24DT52140	↘	↑				
L16	Quadrature Coil	24DT52139						
L17	RF Choke	24KT51976	19-1009	19-1009		4611		7.5uh
L18	RF Choke	24CT53509	19-1009	19-1009		4611		7.5uh
L19	FIL Choke	24KT49879	19-1001	19-1001	BC-552	4604		1.5uh

① 5600Ω Resistor molded into form. * Parallel with 5600Ω Resistor.
② 2700Ω Resistor molded into form. ▲ Parallel with 2700Ω Resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Thordorson PART No.	NOTES
L20	46Ω		24KT52056					Horiz. Osc., Tap ① 16Ω

FILTER CHOKE

ITEM No.	RATINGS CURRENT (Measured)	DC RES	INDUCTANCE @ CURRENT 1000 (%)	REPLACEMENT DATA MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.
L21	.220A	28Ω	.95 Hy.	25KT51797A①				C-2343		C-28X

① Alternate Part #25KT51797.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Rogers PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.
T1	Vert. Output	25KT53389	26875 ①	A-2823 ②	V316 ②	V035 ②	A-8148 ②	26875 ①	A-133X
T2	Yoke-Horiz. (18MH) (180°)-Vert. (33MH)	24KT52132	Y-53 ③④					Y-53 ②③④	Y-93-1 ③
	Rear Cover and Centering Device	59CT51843							YC-110
	Yoke Clamp	42A742819							
T3	Horiz. Output	24KT52326②							
	Primary & Secondary Coil Assembly	24KT51612							

① Use 8 to 1 turns ratio. Connect as autoformer.
② Cut and tape green lead.
③ Connect yoke terminal #3 to yoke plug pin #4; Yoke #1 & #3 to plug #6; Yoke #7 to plug #8; Yoke #6 to plug #2; Yoke #4 to plug #1 & #8.
④ Use original rear cover and centering device.
⑤ Complete transformer.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.	NOTES
T4	4900Ω	8-8Ω	25KT51988A①②	34805 ③	A-2903 ③	AU-508 ③		34805 ③		

① Alternate Part #25KT51980.
② Drill new mounting hole.

SPEAKER

ITEM No.	TYPE SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA MOTOROLA PART No.	QUAM PART No.	NOTES
SP1	3" x 5"	PM	8-8Ω	50CT52927	35A0528	

RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA MOTOROLA PART No.	INTERNATIONAL PART No.	ITT PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.320A	48KT48831 ①	SR4 ①	HA504 ①	40K ①	SR500 ①	① Silicon
M2	.320A	48KT48831 ①	SR4 ①	HA504 ①	40K ①	SR500 ①	② Dual Selenium Diode
M3		48CT51856 ②	SD-R ①④	R1815 ②			③ Two required

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA MOTOROLA PART No.	CBS PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
M4	Clevite	48KT47548	1N295	1N295	1N295	Video Det. (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M5	Tuner	1UT51871	VHF with UHF Provisions Complete (CMTT-120YA, YB, YC)
			Models T17P6-1, -2, & -3
	Tuner	1UT53075	VHF Complete (CMTT-123A, B, C) Models 17P-1, -2, & -3
	Tuner		UHF (WT-111)
M6	Circuit Breaker	8KT53304	
	Printed Board	1V753514	Printed Board only, Less All Components
	Antenna	1V749499	Model 17P6-1, T17P6-1 (JFD Replacement Type #TA364)
	Antenna	1V749490	Model 17P6-2, T17P6-2 (JFD Replacement Type #TA364)
	Antenna	1V749491	Model 17P6-3, T17P6-3 (JFD Replacement Type #TA364)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Bezel	13KT52752	Model 17P6-1
Bezel	13KT53276	Models 17P6-2, -3

MOTOROLA MODELS YT17P6-1, -2, -3, 17P6-1, -2, -3 (CH. TS-433, TS-433Y)

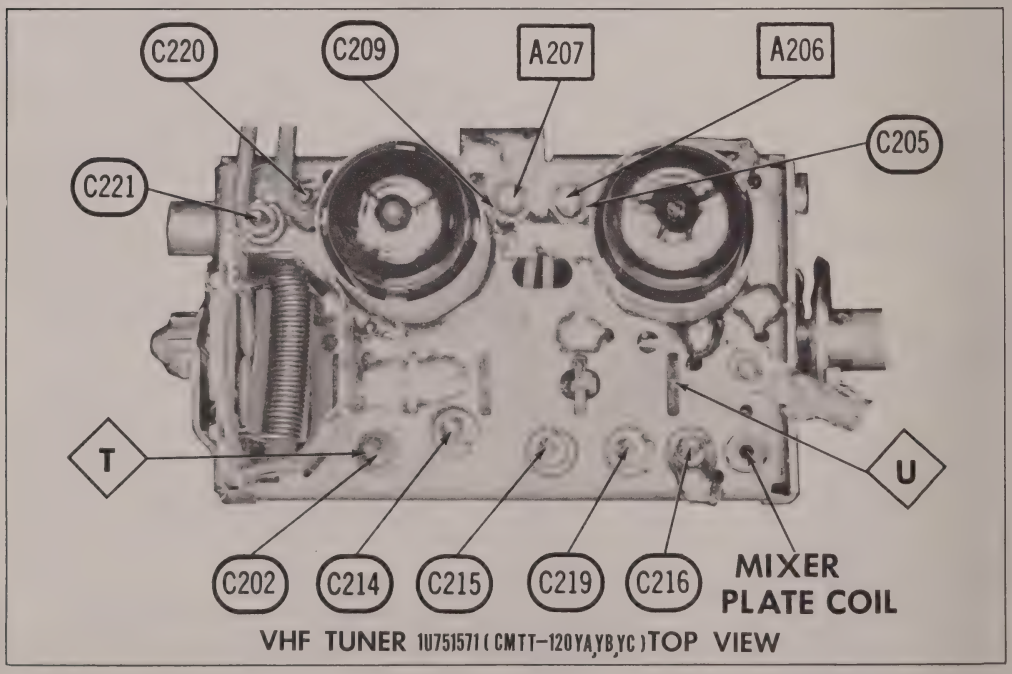
FOLDER 2

CABINETS & CABINET PARTS (cont)

NAME	PART NO.	DESCRIPTION
Safety Glass	61E752559	Model 17P6-1
Safety Glass	61K753510	Models 17P6-2, -3
Knob	36D752436	Channel Selector, Model 17P6-1
Knob	36K753117	Channel Selector, Model 17P6-2
Knob	36K753121	Channel Selector, Model 17P6-3
Knob	36C752435	Fine Tuning, All VHF Models
Knob	36K751574	Fine Tuning, All UHF Models
Dial Scale	34K753110	UHF, Model 17P6-1
Dial Scale	34K753111	UHF, Model 17P6-2
Dial Scale	34K753112	UHF, Model 17P6-3
Knob	36B752436	Off-On, Volume, Model 17P6-1
Knob	36K753113	Off-On, Volume, Model 17P6-2
Knob	36K753115	Off-On, Volume, Model 17P6-3
Knob	36K752432	Brightness, Model 17P6-1
Knob	36K753277	Brightness, Model 17P6-2
Knob	36K753279	Brightness, Model 17P6-3
Knob	36K752437	Contrast, Model 17P6-1
Knob	36K753114	Contrast, Model 17P6-2
Knob	36K753116	Contrast, Model 17P6-3
Knob	36K752592	Vertical Hold, Model 17P6-1
Knob	36K753278	Vertical Hold, Model 17P6-2
Knob	36K753280	Vertical Hold, Model 17P6-3
Knob	36K753531	Horiz. Hold, Model 17P6-1
Knob	36K853532	Horiz. Hold, Model 17P6-2
Knob	36K753533	Horiz. Hold, Model 17P6-3
Cabinet	1V753607	Black, Includes Handle & Bracket Assembly, Model 17P6-1
Cabinet	1V753608	Black, Includes Handle & Bracket Assembly, Model Y17P6-1
Cabinet	1V753609	Tan, Includes Handle & Bracket Assembly, Model 17P6-2
Cabinet	1V753610	Tan, Includes Handle & Bracket Assembly, Model Y17P6-2
Cabinet	1V753611	Brown, Includes Handle & Bracket Assembly, Model 17P6-3
Cabinet	1V753612	Brown, Includes Handle & Bracket Assembly, Model Y17P6-3
Cabinet Handle	55C752849	Model 17P6-1
Cabinet Handle	55C752850	Model 17P6-2
Cabinet Handle	55C752851	Model 17P6-3

WIRING DATA

High Voltage Lead	Use BELDEN No.	8869
Shielded Hook-up Wire	Use BELDEN No.	8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No.	8874
300Ω Tuner Input Lead	Use BELDEN No.	8225
300Ω Antenna Lead-in	Use BELDEN No.	8230 or 8275
Antenna Rotor Cable	Use BELDEN No.	8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor



VHF TUNER 1U751571 (CMTT-120YA,YB,YC) TOP VIEW

UHF TUNER PARTS LIST AND DESCRIPTIONS

WTT–111

TUBES

• CBS •		GENERAL ELECTRIC •	RAYTHEON •		SYLVANIA •	
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	
V301	UHF Osc.	2AF4A				

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R301	470K	

ITEM No.	RATING	REMARKS
R302	27K	

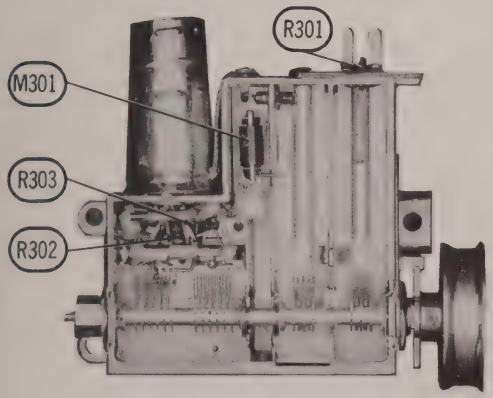
ITEM No.	RATING	REMARKS
R303	1200Ω	

COMPONENT COMBINATIONS

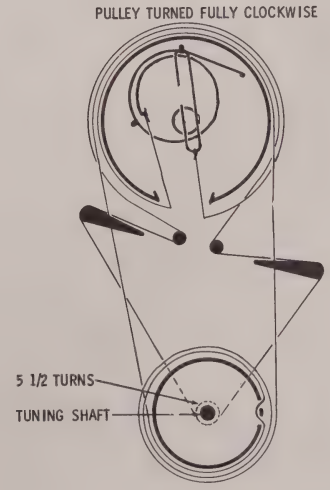
ITEM No.	USE	DESCRIPTION	MOTOROLA PART No.	REPLACEMENT DATA
K301	UHF Antenna Filter	470mmf, .3-1meg		Centralab RC-471 Sprague AC1-1
K302	UHF Antenna Filter	470mmf, .3-1meg		Centralab RC-471 Sprague AC1-1

CRYSTAL DIODES

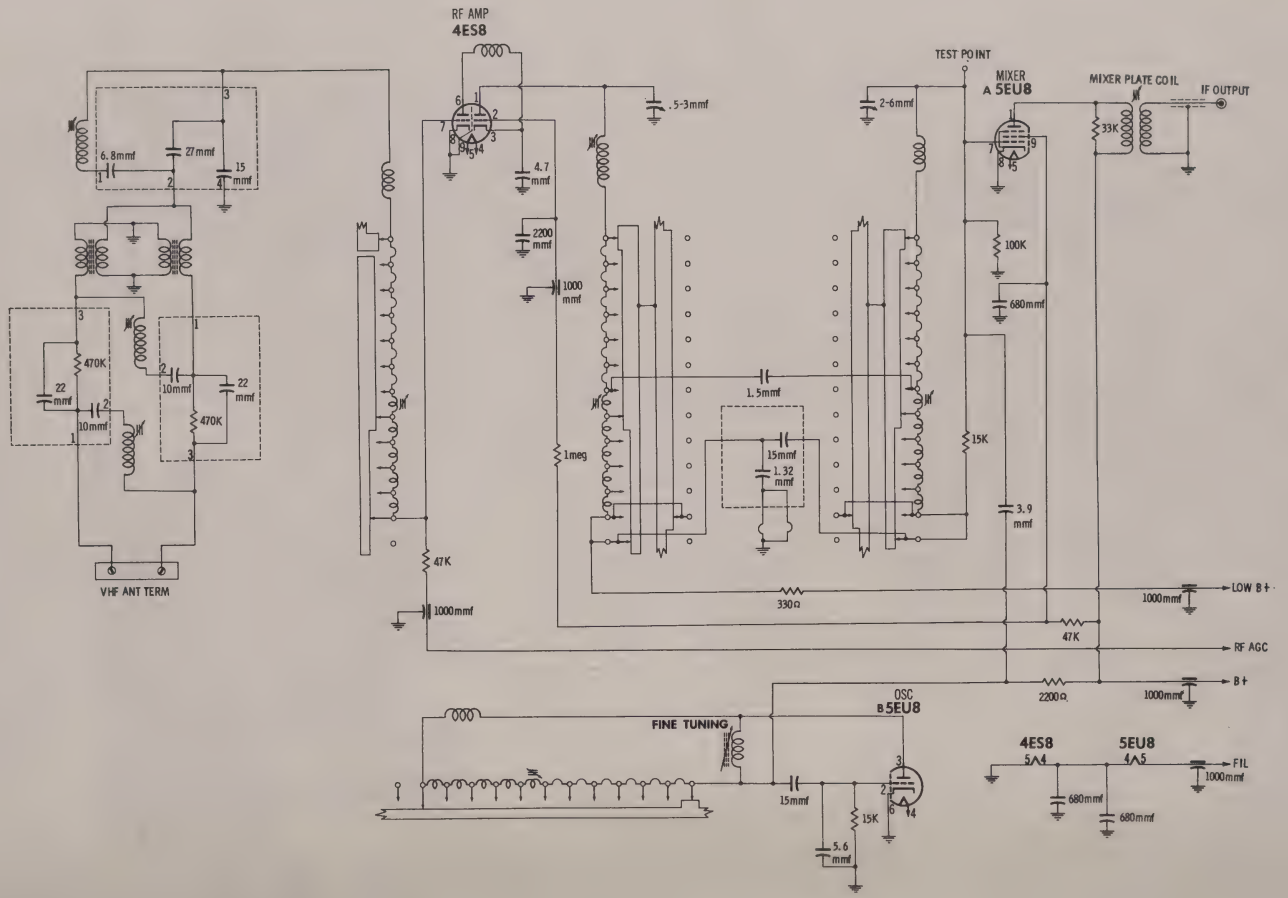
ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		MOTOROLA PART No.	CBS PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M301		742970	1N82A		1N82A	



UHF TUNER WTT–111



UHF DRIVE CORD STRINGING



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VHF TUNER 1U753075- (CMTT-122A, B, C)

TUNER ALIGNMENT INSTRUCTIONS (cont)

UHF IF ALIGNMENT

Remove the UHF Tuner from the side of the VHF Tuner so that UHF input receptacle of VHF Tuner is accessible. Coils are accessible thru opening in the side of tuner.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13.	Fig. 203	High side thru matching network to UHF input receptacle. Low side to chassis.	44MC (10MC Swp)	41.25MC 45.75MC	UHF	Vert. Amp. thru 47K to point ⓓ. Low side to chassis.	A216, A217	Adjust for maximum gain and symmetry of response similar to Fig. 204 with markers as shown.

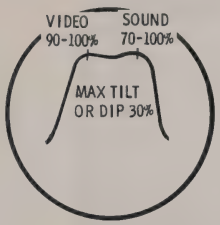


FIG. 201

FIG. 202

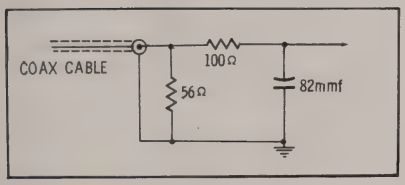
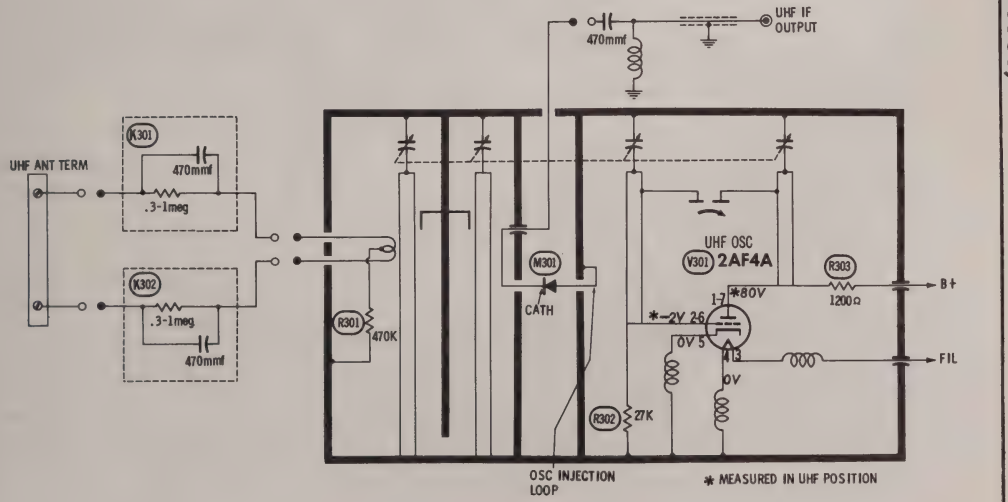


FIG. 203

FIG. 204



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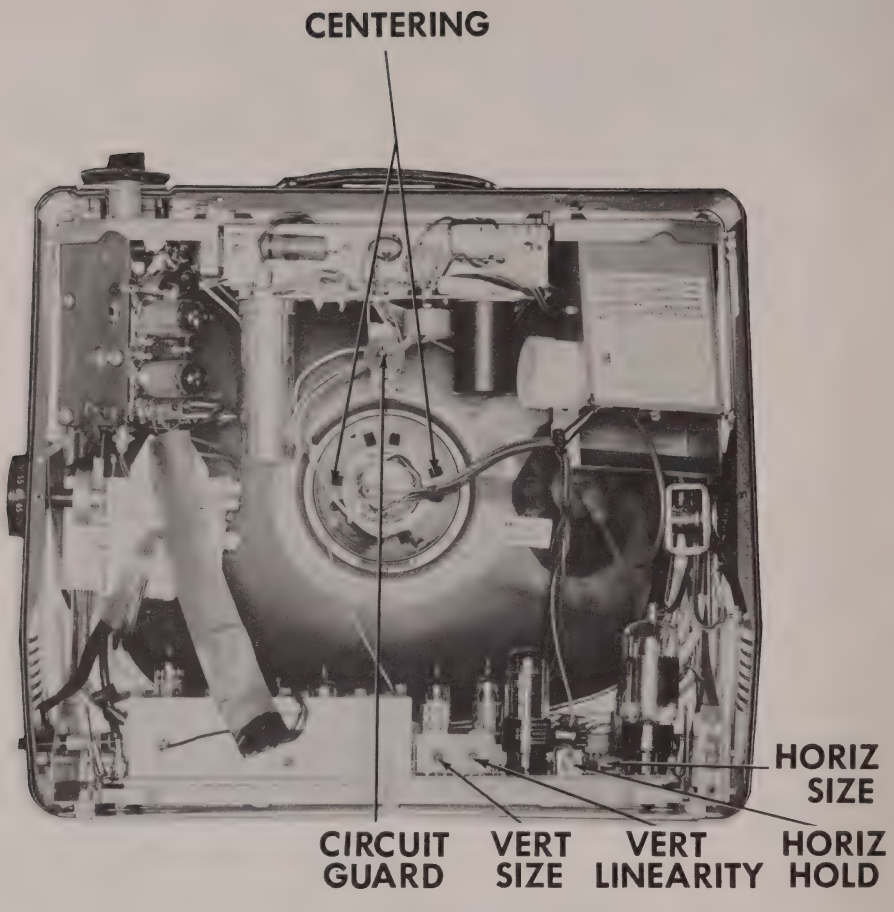
UHF TUNER WTT-111



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

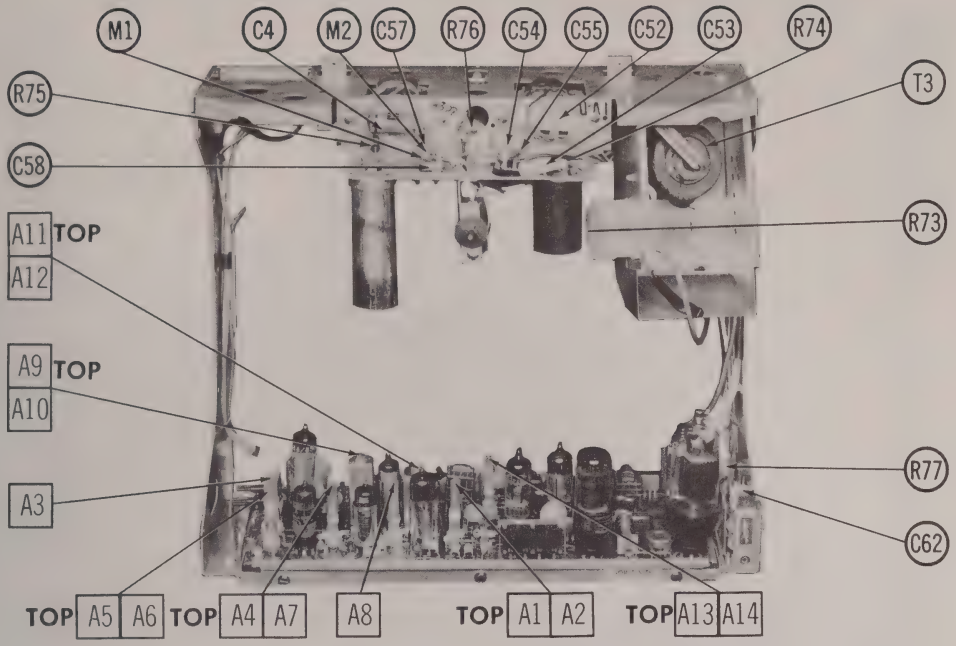
Turn the set on and tune in a TV station, preferably with a test pattern.

Set the Brightness and Contrast controls for a normal picture.

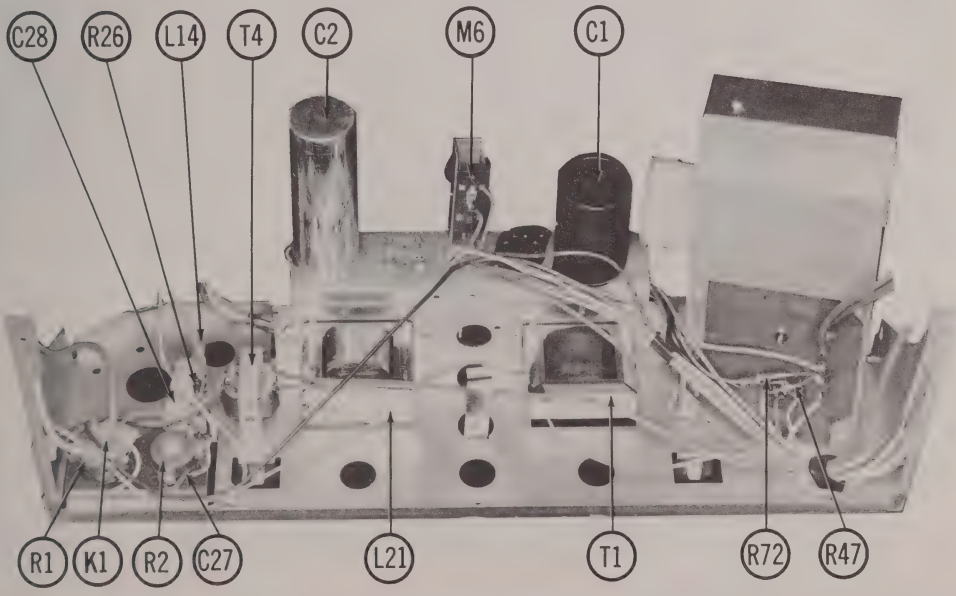
Turn the Horizontal Hold clockwise until the picture loses sync. It may be necessary to switch off channel and on again for picture to lose sync.

Turn the Horizontal Hold slowly counterclockwise until the picture just falls into sync.

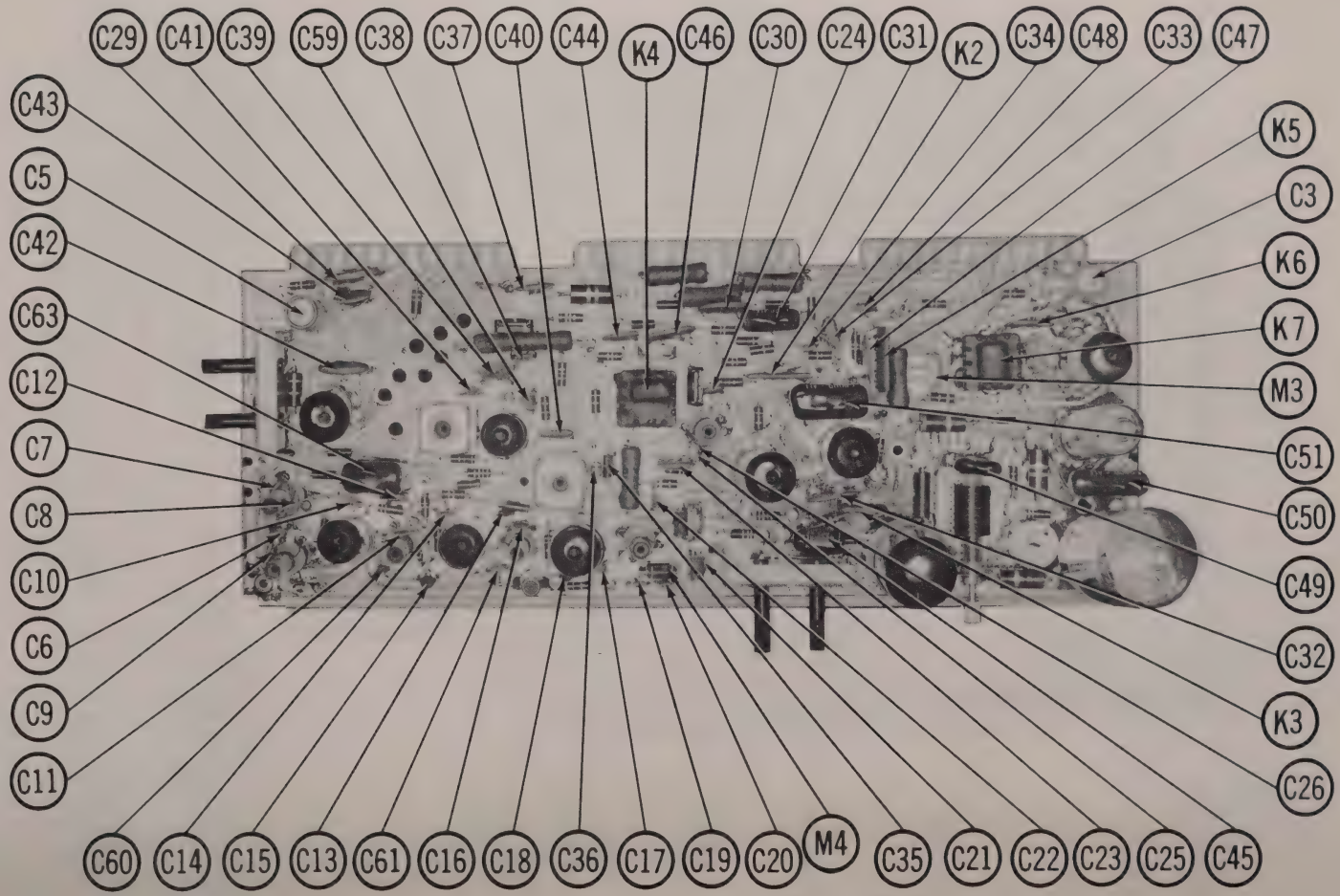
Adjust Horizontal Size control for a picture SLIGHTLY larger than necessary to fill picture mask horizontally.



CHASSIS REAR VIEW



SUB CHASSIS



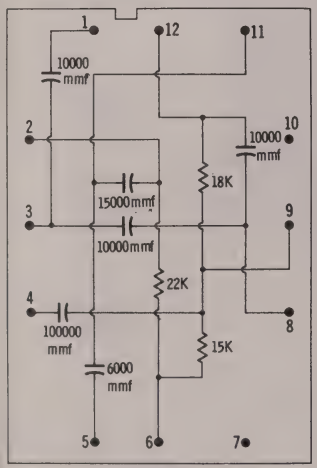
PRINTED BOARD - CAPACITOR & MISC. IDENT.

RESISTANCE MEASUREMENTS

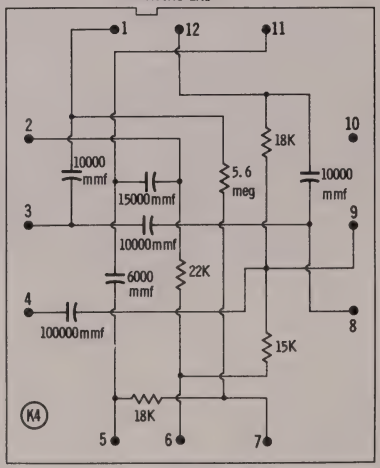
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3BZ6	600K	47Ω	12Ω	13Ω	▲470Ω	▲470Ω	0Ω		
V2	3BZ6	60K	▲15Ω	13Ω	14Ω	†1000Ω	†1000Ω	INF		
V3	6AU8	0Ω	100K	†49K	15.5Ω	14Ω	56Ω	1000Ω	†6000Ω	†6000Ω
V4	8GN8	0Ω	●2.3meg	† 4.2meg	7.5Ω	9.5Ω	47Ω	3400Ω	†22K	†5700Ω
V5	3BU8	†2700Ω	†0Ω	2.5meg	6.5Ω	7.5Ω	†35K	†560K	†68K	†10meg
V6	3DT6	3.6Ω	560Ω	4Ω	3.5Ω	†390K	†22K	560K		
V7	XL84 8BQ5	0Ω	0Ω	180Ω	9.5Ω	12Ω	NC	†785Ω	NC	†470Ω
V8	7EY6	NC	18Ω	†640Ω	†150Ω	●2.5meg	NC	15.5Ω	0Ω	
V9	5EA8	†10K	†2.7meg	†10K	6.5Ω	5.5Ω	†47K	0Ω	820Ω	1.8meg
V10	12GC6	NC	20Ω	22Ω	NC	1meg	NC	18Ω	†●14K	TOP CAP †17Ω
V11	12AF3	NC	NC	NC	22Ω	20Ω	NC	NC	NC	†2.8Ω TOP CAP ¶ 5meg
V12	1S2A	PINS 1 THRU 9 HAVE INFINITE RESISTANCE								TOP CAP †547Ω
V13	17DTP4	5.5Ω	100K	†1meg	0Ω	TP	NC	●240K	4Ω	
V201	XCC189 4ES8	†5900Ω	400K	INF	2Ω	.9Ω	INF	3.9meg	0Ω	0Ω
V202	5EU8	†8200Ω	15K	†10K	2Ω	3.5Ω	0Ω	100K	0Ω	†55K
V301	2AF4A	†*9400Ω	27K	.9Ω	0Ω	0Ω	27K	†*9400Ω		
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
▲ MEASURED FROM PIN 7 OF V2. * MEASURED IN UHF POSITION.
† MEASURED FROM 260V SOURCE. NC NO CONNECTION
† MEASURED FROM CAP OF V11. TP TIE POINT

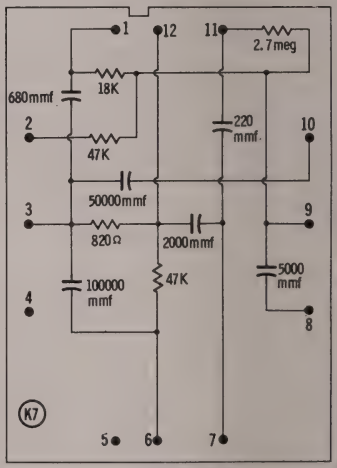
WHEN THIS MODULE IS USED, RISER #7 MUST BE CLIPPED EACH SIDE OF WAFER NEAREST TO MOUNTING END



ALT MODULE UNIT (K4)
PART #51K753520



PART #51K751883



PART #51K753301

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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COMPONENT COMBINATION LAYOUT

PHOTOFACT® Folder

**PRODUCTION CHANGE
BULLETIN 238**

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 1 IN SET 445

MOTOROLA MODELS Y17P5-2C, Y17P5-3F, Y17P5-4F, Y17P5-5F, 17P5-2C, 17P5-3A, 17P5-4A, 17T32WH (CH. QTS-430, TS-430, Y)

Motorola Models Y17P5-1, Y17P5-2, Y17T32BZ, 17P5-1, 17P5-2, 17T32BZ, 17T33B, 17T33M (Ch. LTS-430, TS-430, TS-430Y) were covered in PHOTOFACT Folder 1 - Set 445.

Models Y17P5-2C, Y17P5-3F, Y17P5-4F, Y17P5-5F, 17P5-2C, 17P5-3A, 17P5-4A, 17T32WH (Ch. QTS-430, TS-430, TS-430Y) are added along with late production changes with the publication of this bulletin.

TO REDUCE PULSE VOLTAGE

T3 (Horizontal Output Transformer) is changed to part #24K750664. The primary and secondary coils of this transformer may be purchased separately. Primary Coil Part #24K745281, Secondary Coil Part #24K751008.

R85 is increased from .47Ω to .8Ω.

R74 is increased from 39K to 82K.

R81 is omitted.

C32 is increased from 5.6mmf to 6.8mmf.

C71 is decreased from 150mmf to 100mmf.

C72 is decreased from 680mmf to 390mmf.

C76 is decreased from .1mfd to .005mfd.

A 27mmf @ 4KV capacitor is added between pins #4 and #6 of the yoke socket.

A .002mfd capacitor is added between pin #4 of V11 (12DQ6A) and terminal #1 of T3 (Horizontal Output Transformer).

(Continued on the reverse side)

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 1 IN SET 417

HOFFMAN MODELS BW1707-A, CW1707-A, RW1707-A, TW1707-A (CH. 338-A)

Hoffman Models BW1707, CW1707, RW1707, TW1707 (Ch. 338) were covered in PHOTOFACT Folder 1 - Set 417.

Models BW1707-A, CW1707-A, RW1707-A, TW1707-A (Ch. 338-A) are added along with late production changes with the publication of this bulletin.

TUBE CHANGE

V10 (Vertical Output Tube) is changed from a type 5CZ5 to a type 8EM5.

COMPONENT CHANGES

C3C is increased from 40mfd @ 50 volts to 100mfd @ 50 volts.

C41 is decreased from .047mfd to .033mfd.

R55 is increased from 390K to 2.2meg.

R56 is increased from 270K to 330K.

R57 is increased from 10K to 15K.

R58 is increased from 10K to 12K.

R59 is increased from 10K to 12K.

R60 is decreased from 18K to 10K.

PRODUCTION CHANGE
BULLETIN 238

PRODUCTION CHANGE
BULLETIN 238

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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SET 488 FOLDER 3

TO IMPROVE VERTICAL RELIABILITY

R7A, B (Vert. Height - 5meg with a 1meg stop; Vert. Linearity - 2meg) is changed to Vert. Height - 4meg and Vert. Linearity - 2meg with a 220K stop (Part #18K750607).

R60 is omitted. This resistor is replaced by the 220K stop on the Vert. Linearity Control.

A 1meg resistor is added to take the place of the 1meg stop removed from the Vert. Height Control.

TUNER ADDED

Models 17P5-3A, 17P5-4A, 17P5-5A (Ch. QTS-430) use a new VHF Tuner (1U749549) QCMTT-102. For schematic diagram and further information on this tuner see PHOTOFACT Folder 1 - Set 464 (LCMTT-102). The only difference being the shaft length. Fine Tuning Shaft Part #1V749550, Channel Selector Shaft Part #47C747753.

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	61K747395	
Bezel	13K751087	Models Y17P5-3F, 4F, 17P5-3A, 3F, 4A, 4F
Bezel	13K749288	Models 17P5-5A, 5F
Knob	36K748580	Channel Selector, Models 17P5-3A, 4A, 5A
Knob	36K746583	Channel Selector, Models 17P5-3F, 4F, 5F
Knob	36C738680	Fine Tuning
Knob	36K747405	Off-On-Volume
Knob	36B747402	Brightness
Knob	36K747404	Contrast
Knob	36K747403	Vert. Hold
Scale	34K746597	UHF Dial
Handle	55B749214	Cabinet
Cabinet	16K751085	Models Y17P5-3F, 17P5-3A, 3F
Cabinet	16K751086	Models Y17P5-4F, 17P5-4A, 4F
Cabinet	16K749287	Models Y17P5-5F, 17P5-5A, 5F

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 1 IN SET 464	
	Motorola Models Y21K123B, M, Y21T64B, M, W, Y21T71BR, 21K123B, M, 21T64B, M, W, 21T71BR (Ch. TS-556, Y, VTS-556, Y) were covered in PHOTOFACT Folder 1 - Set 464 Models Y21K122B, M, Y21T64BF, CWF, 21K122B, M, 21T64BF, CWF, 21T71W (Ch. TS-556, Y, VTS-556) are added along with late production changes with the publication of this bulletin.
Chassis Code A10	DESIGN CHANGE C8 is decreased from 10mmf to 6.8mmf. R34 is relocated between the junction of M1 and C2A and the junction of R33 and C2D. R14 is omitted. C70 is omitted.
Chassis Code A11	VERTICAL SWEEP CIRCUIT CHANGE K1 (Vertical Sweep Module) is changed to part #51K753223. With this new module R64 is omitted, K1P (15K resistor) is decreased to 10K. NOISE GATE CONTROL ADDED A 4meg ½ watt Noise Gate Control is added. R43 (220K resistor) is relocated. One side of R43 remains at pin 7 of V5 (3BU8), the other side connects to the center arm of the Noise Gate Control. One side of the control connects directly to the 255V line. The other side remains open.
Chassis Code A12	DESIGN CHANGE C26, C27, R39, R40 are replaced with a res-cap couplate (Part #51B747562). This couplate contains the same components.
Chassis Code A13	COMPONENT CHANGE R23 is decreased from 15K to 10K.
Chassis Code A14	TO REDUCE VERTICAL DRIFT A 180K ½ watt resistor is added between ground and the junction of K1E and K1A. K1A (5.6meg resistor) is removed by clipping the riser wires between the wafer at 3 or 12. A 5.6meg resistor is then rewired on the chassis as an individual component.
Chassis Code A15	DESIGN CHANGE C61, C62, R82 are replaced with a res-cap couplate (Part #51K752327). This couplate contains the same components.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
	4meg Shaft	½	18K740694	AB-86 AK-19	A47-4meg-S RN-3	Q11-141 TQ	PTA56L	Noise Gate

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	61C751223	Models Y21K122B, M, Y21T64BF, CWF, 21K122B, M, 21T64BF, CWF
Bezel	13K752255	Models Y21K122B, M, Y21T64BF, CWF
Bezel	13E750827	Models 21K122B, M, 21T64BF, CWF
Knob	36C751537	VHF Channel Selector, Models Y21K122B, M, 21K122B, M
Knob	36K751537	VHF Channel Selector, Models Y21T64BF, CWF, 21T64BF, CWF
Knob	36K751270	Fine Tuning, Models Y21K122B, M, Y21T64BF, CWF
Knob	36C751269	Fine Tuning, Models 21K122B, M, 21T64BF, CWF
Knob	36B751538	Off-On-Volume
Knob	36K751263	Brightness, Models Y21K122B, M, 21K122B, M
Knob	36B751260	Brightness, Models Y21T64BF, CWF, 21T64BF, CWF
Knob	36K751265	Contrast, Models Y21K122B, M, 21K122B, M
Knob	36K751262	Contrast, Models Y21T64BF, CWF, 21T64BF, CWF
Knob	36K751264	Vert. Hold, Models Y21K122B, M, 21K122B, M
Knob	36K751261	Vert. Hold, Models Y21T64BF, CWF, 21T64BF, CWF
Knob	36K752441	Tone, Models Y21K122B, M, 21K122B, M
Knob	36K752440	Tone, Models Y21T64BF, CWF, 21T64BF, CWF
Dial Scale	34C751266	UHF
Cabinet	16K751106	Models Y21K122B, 21K122B
Cabinet	16K751105	Models Y21K122M, 21K122M
Leg	16K751111	Cabinet, Models Y21K122B, 21K122B
Leg	16K751110	Cabinet, Models Y21K122M, 21K122M

PHOTOFACT® Folder

AUTOMATIC MODELS
TPP-87A, TPP-88, TPP-88C

MODEL TPP-88

AUTOMATIC MODELS
TPP-87A, TPP-88, TPP-88C

TRADE NAME	Automatic Models TPP-87A (For 1957 Plymouth); TPP-88, TPP-88C (For 1957-1958 Plymouth)
MANUFACTURER	Automatic Radio Mfg. Co., Inc., 122 Brookline Ave., Boston 15, Mass.
TYPE SET	Battery Operated 4 Tube, 1 Transistor Custom Built Automobile AM Receiver
POWER SUPPLY	12 Volt Storage Battery
TUNING RANGE—BROADCAST	538 — 1610KC RATING 1.5 Amp. @ 12.6 Volts DC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools:
A1 thru A4.....GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A5, A6.....GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of Converter. Low side to chassis.	265KC (400~ Mod.)	High end stop.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	"	1610KC	"	"	A5	"
3.	High side thru 68mmf to antenna receptacle. Low side to chassis.	"	"	"	A6, A7	"
4.	With radio installed in car and antenna fully extended, tune in a weak station near 1400KC and adjust A7 for maximum output.					

PUSHBUTTON ADJUSTMENT

1. Tune manually to desired station.
2. Pull pushbutton out, then press in firmly.
3. Repeat for remaining pushbuttons.

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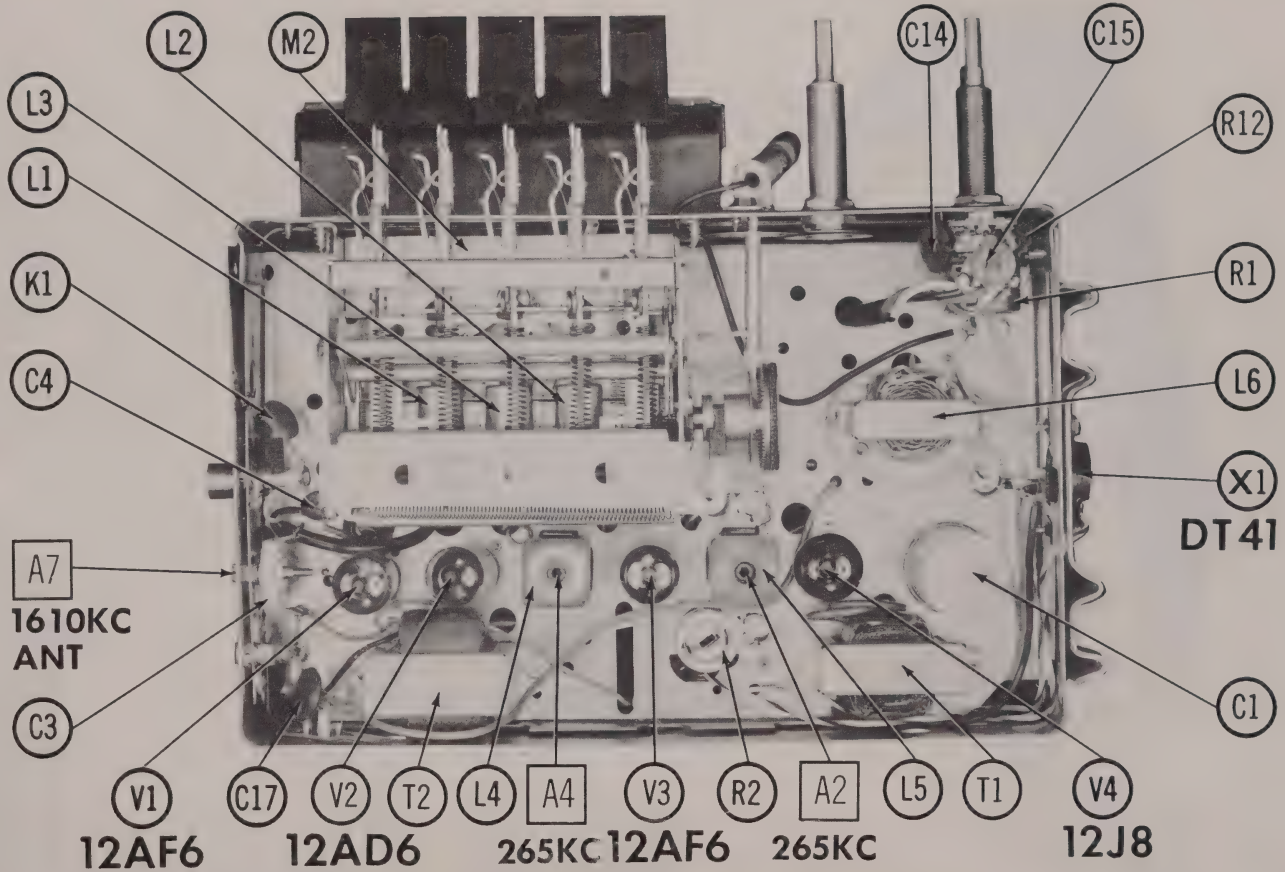
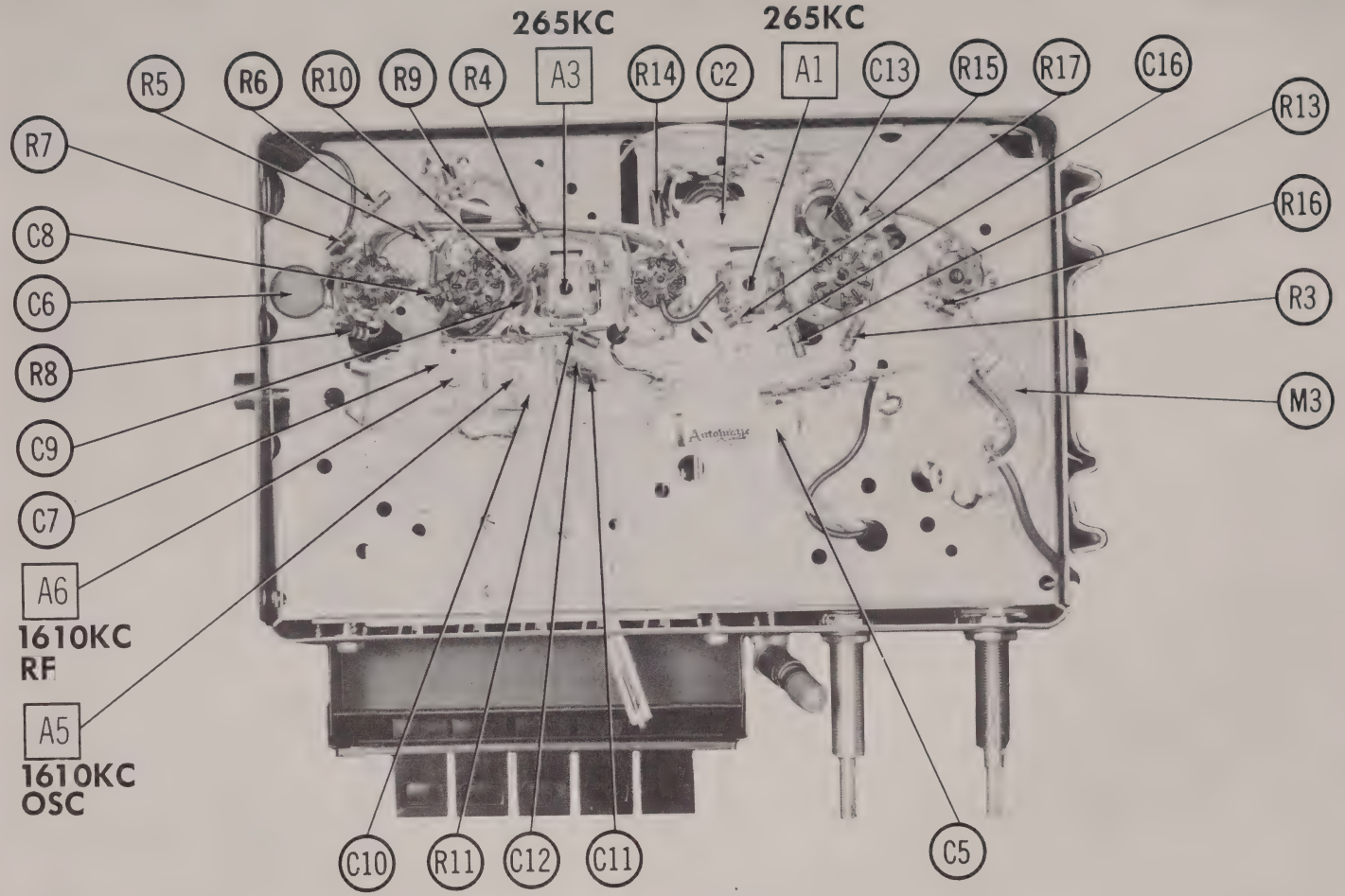
JD714

SET 488 FOLDER 4



CHASSIS-TOP VIEW



CHASSIS-BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

◆ CBS ◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amplifier	12AF6 (12BL6) *	V3	IF Amplifier	12AF6 (12BL6) *
V2	Converter	12AD6	V4	Detector -AVC-AF Amp.	12J8

* Alternate

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	DT-41 *	Output	2N236B			2N242	PNP

* Some versions may use CT-1122, 2N257 or equivalent in this application.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	AUTOMATIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	■500	15	20-317①	AFH3-00-95		WP200.6		TVLS-2157 *	
B	▲500	15							
C2	750	3	20-757	SRE3V500	BR1000-6	PETA190	TD-1000-6	TVAS-1097 *	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
① Some versions may use 500-150mfd (Part #20-315)

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3		#28-800						
C4	40 NPO		NPO-DI 39	TCZ-39	C10Q39C	CCTO-390	CNO-439	10TCC-Q39
C5	.1 200V	(.047) †	P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P1
C6	3000	Note 1	DI-3000	DD-302	BYA10D3	CCD-302	GP230	5HK-D30
C7		#28-400						
C8	12 NPO	(27mmf) †		TCZ-12	C10Q12C	CCTO-120	CNO-412	10TCC-Q12
C9	40 NPO		NPO-DI 39	TCZ-39	C10Q39C	CCTO-390	CNO-439	10TCC-Q39
C10		#28-281						

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C11	51 N750 10%		N750-DI 47	TCN-51	C10Q51U	CCTN-470	CN7-447	10TCU-Q47
C12	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C13	27 NPO		NPO-DI 25	TCZ-27	C10Q27C	CCTO-270	CNO-427	10TCC-Q27
C14	3000	(1500, 01) †	DI-3000	DD-302	BYA10D3	CCD-302	GP230	5HK-D30
C15	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C16	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C17	3000	Note 1	DI-3000	DD-302	BYA10D3	CCD-302	GP230	5HK-D30

Note 1. Not used in some versions.
\# Automatic Part Number.
† Alternate Value.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	AUTOMATIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	2meg	½	80A649A	F1-68				Tone
B	1meg			R2-76				Volume
	600K Tap				RTV-682C	† QJ-995A	UE3953-S	
C	Bushing			AK-26				
D	Switch			KR-4				Power Off-On
R2	500Ω	2(WW)	62-501		39-500-100	112-500-100	FL-600S	Bias
	100Ω Stop							

† "Concentrikit" equivalent: K-8 Kit with base elements & shafts: B13-139, P14-125 (Panel)
B19-137X, R1-209 (Rear)
S42 (Bushing)
76-1 (Switch)

RESISTORS

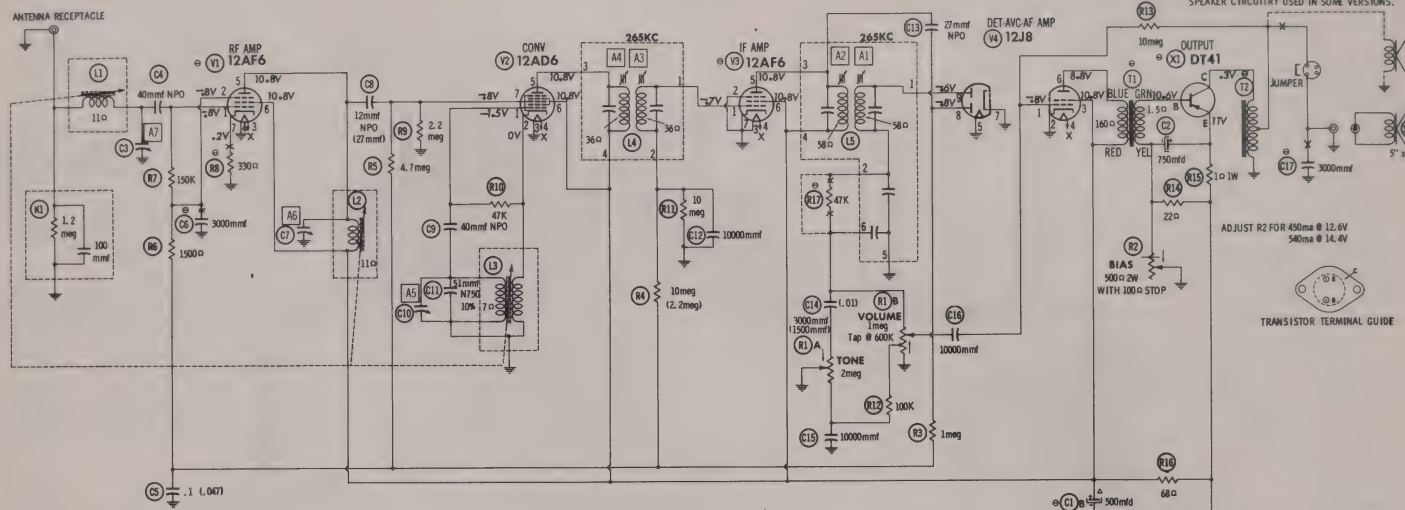
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R3	1meg	(2.2meg) *
R4	10meg	
R5	4.7meg	
R6	1500Ω	
R7	150K	

ITEM No.	RATING	REMARKS
R8	330Ω	Note 1
R9	2.2meg	
R10	47K	
R11	10meg	
R12	100K	Note 1

ITEM No.	RATING	REMARKS
R13	10meg	
R14	22Ω	
R15	1Ω 1W	
R16	68Ω	
R17	47K	Note 1

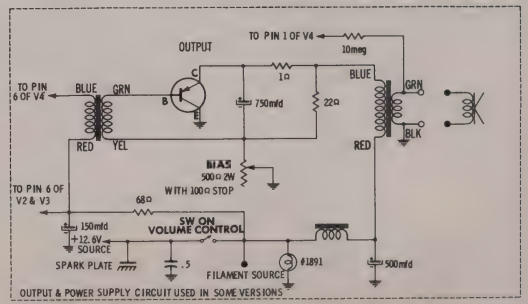
Note 1. Not used in some versions.
* Alternate Value.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AF6	6.5meg	6.4meg	1.8Ω	0Ω	†75Ω	†68Ω	330Ω		
V2	12AD6	47K	.8Ω	0Ω	1.8Ω	†100Ω	†68Ω	2.2meg		
V3	12AF6	7meg	0Ω	0Ω	1.8Ω	†110Ω	†68Ω	0Ω		
V4	12J8	10meg	0Ω	†68Ω	1.8Ω	0Ω	†230Ω	0Ω	7meg	1meg

† MEASURED FROM JUNCTION R16 & C1A.
TRANSISTOR CIRCUIT RESISTANCE NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter;
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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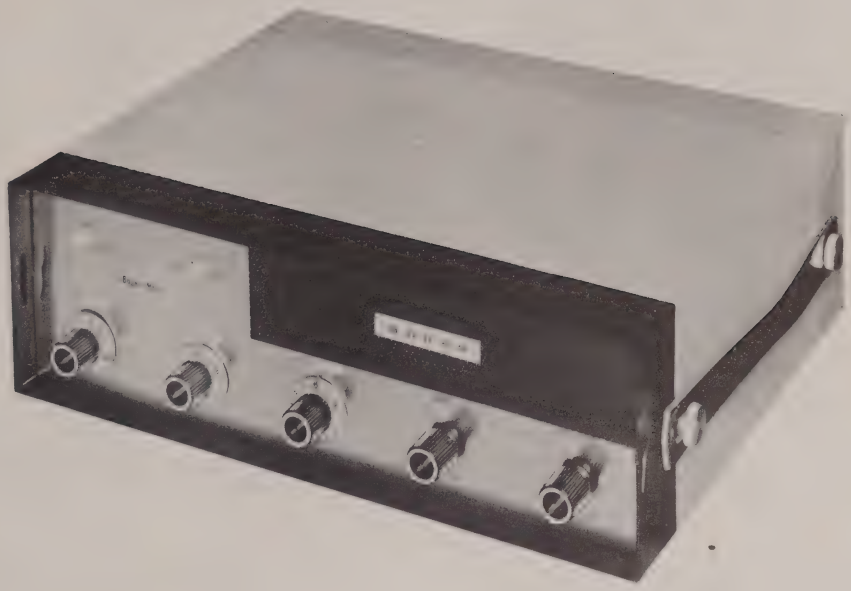
AUTOMATIC MODELS
TPP-87A, TPP-88, TPP-88C

PHOTOFACT® Folder

**BOGEN
MODEL M60**

BOGEN
MODEL M60



BOGEN
MODEL M60

TRADE NAME	Bogen Model M60
MANUFACTURER	Bogen-Presto Co., A Division of the Siegler Corp., P. O. Box 500, Paramus, New Jersey
TYPE SET	AC Operated 9 Tube Audio Amplifier
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles RATING 160 Watts, 1.6 Amp. @117 Volts AC

BIAS ADJUSTMENT

If either output tube (V5, V6) is replaced, the bias should be adjusted.

1. Turn volume control to minimum, bias control to maximum (direction of arrow).
2. Remove shorting links from terminal strip on top of chassis(near T2)
3. Allow amplifier to warm up.
4. Connect a low range DC voltmeter (.5V) from terminal 1 of strip to center terminal.
5. Adjust Bias R6 for meter reading of .5V.
6. Connect meter from terminal 2 to center terminal and adjust Bias R7 for .5V.

SET 488 FOLDER 5

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES

◆ CBS ◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Phono Pre Amp - Mic 1 Pre Amp	ECC83/12AX7	V5	Output	7027A
V2	Mic 2 Pre Amp - Mic 3 Pre Amp	ECC83/12AX7	V6	Output	7027A
V3	AF Mixer - AF Amp.	7247	V7	Rectifier	GZ34/5AR4
V4	AF Amp - Phase Inv	ECC83/12AX7	V8	Rectifier	GZ34/5AR4
			V9	Rectifier	GZ34/5AR4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA BOGEN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	20	500	79-001-147	PRS1830	BR2050	TC83	TD-20-500	TVA-1906	
C2A	▲20	450	79-010-001	AFH3-36	C0270	FP475.5	TMT-35	TVL-3780	
B	10	450							
C	20	350							
D	10	350							
C3	40	300	79-010-024	AFH1-40	A0380	FP146	TMS-37	TVL-1622	
C4	40	300	79-010-024	AFH1-40	A0380	FP146	TMS-37	TVL-1622	
C5A	▲5	200	①	AFH4-09	D0080	WP433.6	TMQ-9	TVL-4759.7	
B	■5	200	①						
C	5	200							
D	5	200							
C6	30	150	79-001-078	PRS1460	BR3015	TC47	TD-30-150	TVA-1412	
C7	30	150	79-001-078	PRS1460	BR3015	TC47	TD-30-150	TVA-1412	

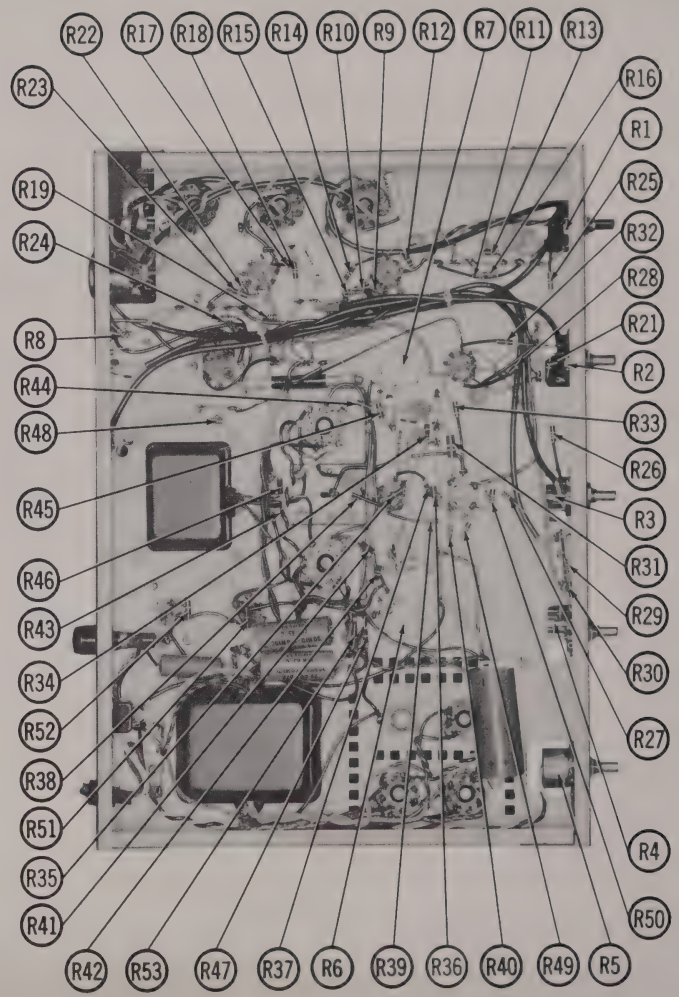
① When C5B is not used, C5A is 10mfd.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C8	68 10%		DI-680	DD-680	L10Q68	CCD-680	GP468	10TS-Q68
C9	.033 200V		P288N-033	DD-303	CUB6S33	4DP-2-333	GEM-4133	6TM-S33
C10	15000		BPD-015	DD-153	BYA10S15	CCD-153	GP150	5HK-S15
C11	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C12	680 10%		DI-681	DD-681	IR5T68	CCD-681	GP368	10TS-T68
C13	1500		BPD-0015	DD-152	BYA10D15	CCD-152	GP215	5HK-D15
C14	.033 200V		P288N-033	DD-303	CUB6S33	4DP-2-333	GEM-4133	6TM-S33
C15	.033 200V		P288N-033	DD-303	CUB6S33	4DP-2-333	GEM-4133	6TM-S33
C16	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C17	4700 10%		DI-4700		PM6D47	CCD-472	JL-247	10TS-D47
C18	1500 10%		DI-1500	DD-152	PM6D15	CCD-152	GP215	10TS-D15
C19	.033 200V		P288N-033	DD-303	CUB6S33	4DD-2-333	GEM-4133	6TM-S33
C20	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C21	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1
C22	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C23	820 10%		DI-820	DD-821	IRST82	CCD-821	GP382	10TS-T82
C24	3300 10%		DI-3300		PM6D33	CCD-332	JL-233	10TS-D33
C25	1200 10%		DI-1200	DD-122	1R5D12	CCD-122	GP212	10TS-D12
C26	1000 10%		DI-1000	DD-102	PM6D1	CCD-102	GP210	10TS-D10
C27	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C28	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1
C29	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1
C30	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	BOGEN PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	500K	½	77-001-367	B-60	A47-500K-Z	Q13-133	U48	Input Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R2A	500K	½	77-001-367	B-60	A47-500K-Z	Q13-133	U48	Mic 2 Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	500K	½	77-001-367	B-60	A47-500K-Z	Q13-133	U48	Mic 3 Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R4A	1. 5meg	½	77-001-407	B-76	A47-2meg-Z	B13-138	RU155A	Bass
B	Bushing			Not Req.	Not Req.	Not Req.	SL38	
C	Shaft			Not Req.	FS-3	SK1	SL3500	
R5A	500K	½	77-001-377	B-60-S	A47-500K-Z	Q13-133	U48	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-12	76-1	US-26	Power off/on
R6A	10K	½	77-001-400	AB-14	A47-10K-S	B11-116	SU-20	Bias #1
B	Shaft			AK-1	FKS 1/4	SK-2	Not Req.	
R7A	10K	½	77-001-400	AB-14	A47-10K-S	B11-116	SU-20	Bias #2
B	Shaft			AK-1	FKS-1/4	SK-2	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R8	47K	
R9	3. 3meg	
R10	100K	
R11	150K	
R12	3. 3meg	
R13	3. 3meg	
R14	100K	
R15	47K	Note 1
R16	82K	
R17	3. 3meg	
R18	100K	
R19	47K	
R20	180K	
R21	220K	
R22	3. 3meg	
R23	100K	

ITEM No.	RATING	REMARKS
R24	47K	
R25	220K	
R26	270K	
R27	68K	
R28	1200Ω	
R29	68K	
R30	10K	Note 1
R31	82K 1W	
R32	1200Ω	
R33	1600Ω	
R34	6. 8meg	
R35	1meg	
R36	15K	
R37	82K	
R38	47K	
R39	82K	

ITEM No.	RATING	REMARKS
R40	4700Ω	
R41	1000Ω	
R42	100K	
R43	10Ω	
R44	1000Ω	
R45	100K	
R46	10Ω	
R47	1000Ω	
R48	47K	
R49	33K	
R50	33K	
R51	1meg	(100K) *
R52	1meg	(100K) *
R53	2200Ω	

Note 1. Not used in some versions.
* Alternate Value.

COILS (RF-IF)

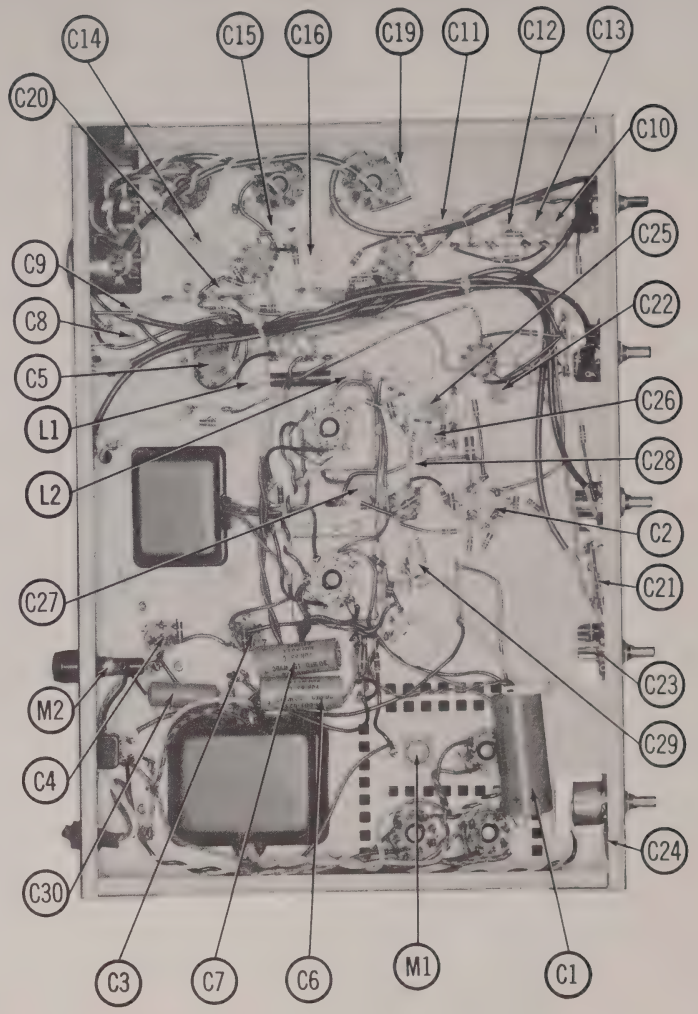
ITEM No.	USE	REPLACEMENT DATA						NOTES
		BOGEN PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	FIL Choke		19-1008	19-1008	SW-631	4529		① 4. 7uh
L2	FIL Choke		19-1008	19-1008	SW-631	4529		① 4. 7uh

① IRC Part #CL-1

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	BOGEN PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	125V @ 1.55A Tap @ 117V @ 1.6A	800VCT @ .150A Tap @ 530VCT @ .025A Tap @ 65V @ .003A	5V @ 3. 8A	83-612-000						
	SEC. 3	SEC. 4	SEC. 5							
	5V @ 1.9A	6.3V @ .9A	6.3V @ 3.6A							

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.1	BOGEN PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	6400Ω	16Ω tap @ 8Ω, 4Ω SEC.2 64Ω	83-300-100							

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	BOGEN PART No.	INTERNATIONAL PART No.	ITT PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1	.001A	H-373 *	D-5410 *	1159 *	10 *		*Selenium Type

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			BOGEN PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	1.5A 125V S/B			31301.5 (1½A 125V S/B)	342001	MDX1½	HKP

MISCELLANEOUS

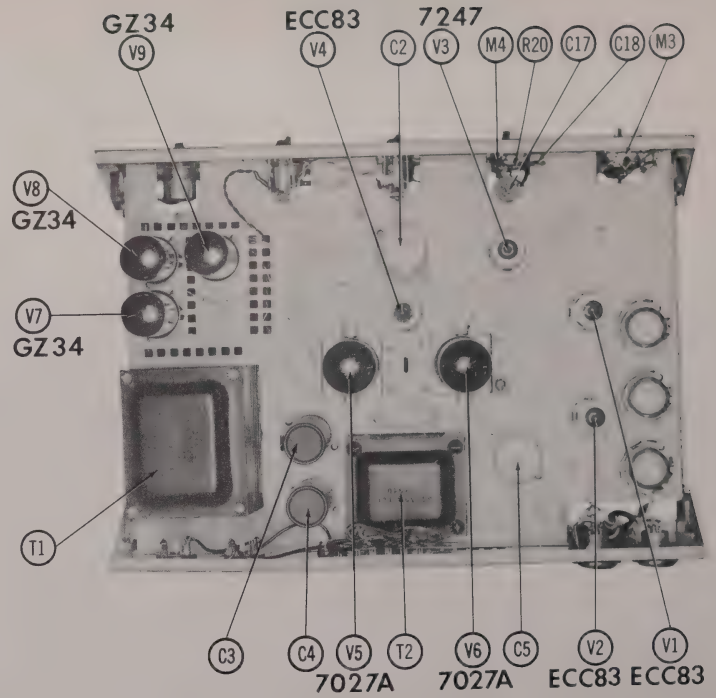
ITEM No.	PART NAME	BOGEN PART No.	NOTES
M3	Switch		Selector (DP 3 Position, Slide Type)
M4	Switch		Speech Filter (DPDT, Slide Type)

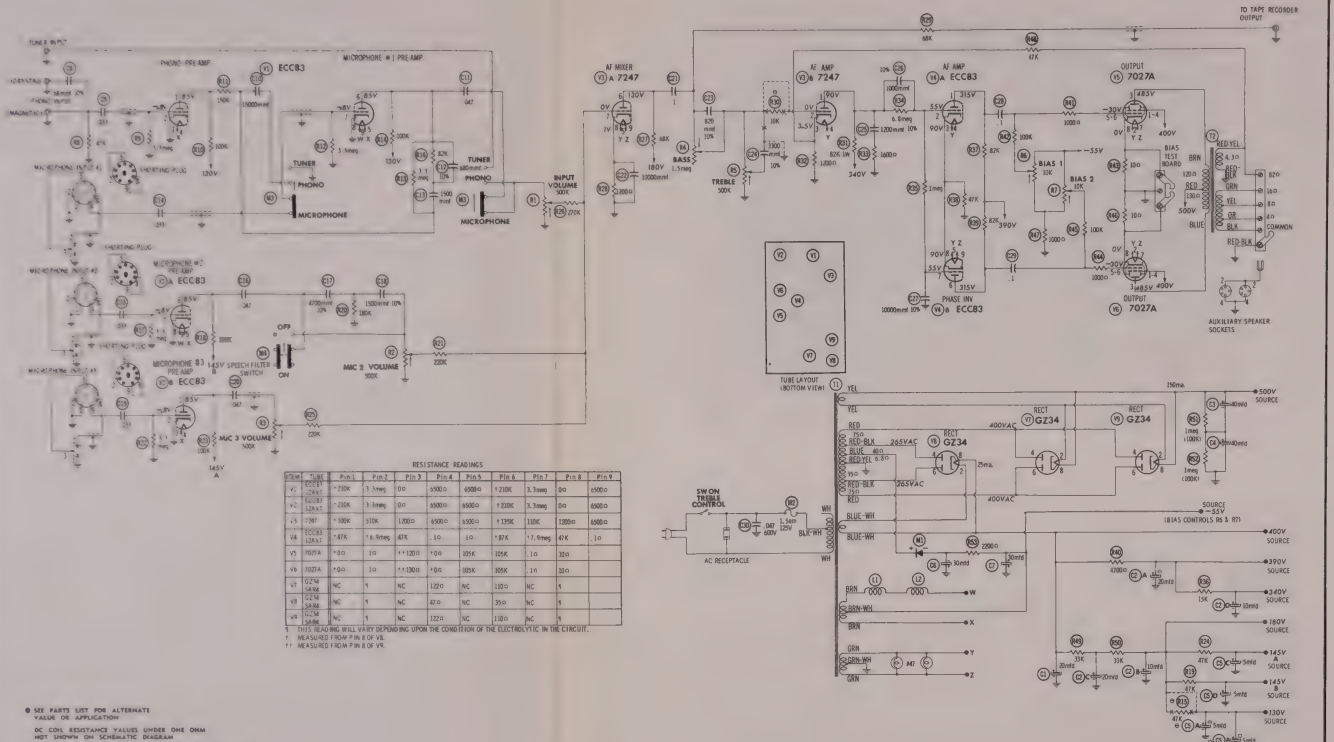
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

CHASSIS—TOP VIEW





RESISTANCE READINGS

STEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC83 12AX7	* 210K	3.1meg	0Ω	6500Ω	6500Ω	† 210K	3.1meg	0Ω	6500Ω
V2	ECC83 12AX7	* 220K	3.1meg	0Ω	6500Ω	6500Ω	† 230K	3.1meg	0Ω	6500Ω
V3	7247	* 300K	510K	1,200Ω	6500Ω	6500Ω	† 395K	110K	1200Ω	6000Ω
V4	ECC83 12AX7	* 87K	* 6.9meg	47K	1Ω	1Ω	* 87K	† 7.9meg	47K	1Ω
V5	7027A	* 0Ω	1Ω	* † 120Ω	* 0Ω	105K	105K	1Ω	30Ω	
V6	7027A	* 0Ω	1Ω	* † 130Ω	* 0Ω	105K	105K	1Ω	30Ω	
V7	GZ34 5AR4	NC	†	NC	122Ω	NC	110Ω	NC	†	
V8	GZ34 5AR4	NC	†	NC	42Ω	NC	35Ω	NC	†	
V9	GZ34 5AR4	NC	†	NC	122Ω	NC	110Ω	NC	†	

† THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
†† MEASURED FROM PIN 8 OF V8.
††† MEASURED FROM PIN 8 OF V9.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION CONTROL VIEWED FROM SHAFT END.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. AC voltages measured at 1,000 ohms per volt.
3. Resistance values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

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BOGEN MODEL M60

PHOTOFACT® Folder

**CAPITOL MODELS
954, 954C**

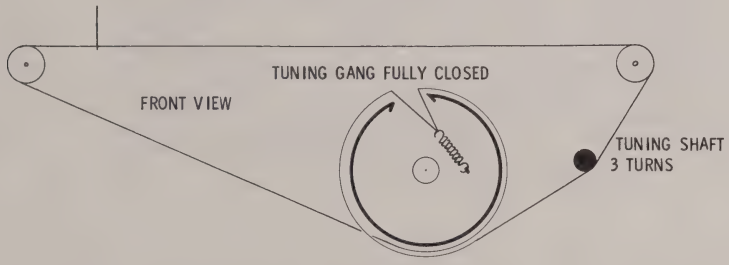
CAPITOL MODELS
954, 954C

MODEL 954C

CAPITOL MODELS
954, 954C

TRADE NAME	Capitol Models 954, 954C		
MANUFACTURER	Capitol Records, Inc., 1 S. Webster Ave., Scranton 5, Pa.		
TYPE SET	AC Operated 8 Tube FM-AM Tuner		
POWER SUPPLY	105 - 125 Volts AC, 60 Cycles	RATING	32 Watts, .56 Amp. @117 Volts AC
TUNING RANGE—BROADCAST	540 — 1650KC	FREQ. MOD.	88 - 108MC

DIAL CORD STRINGING



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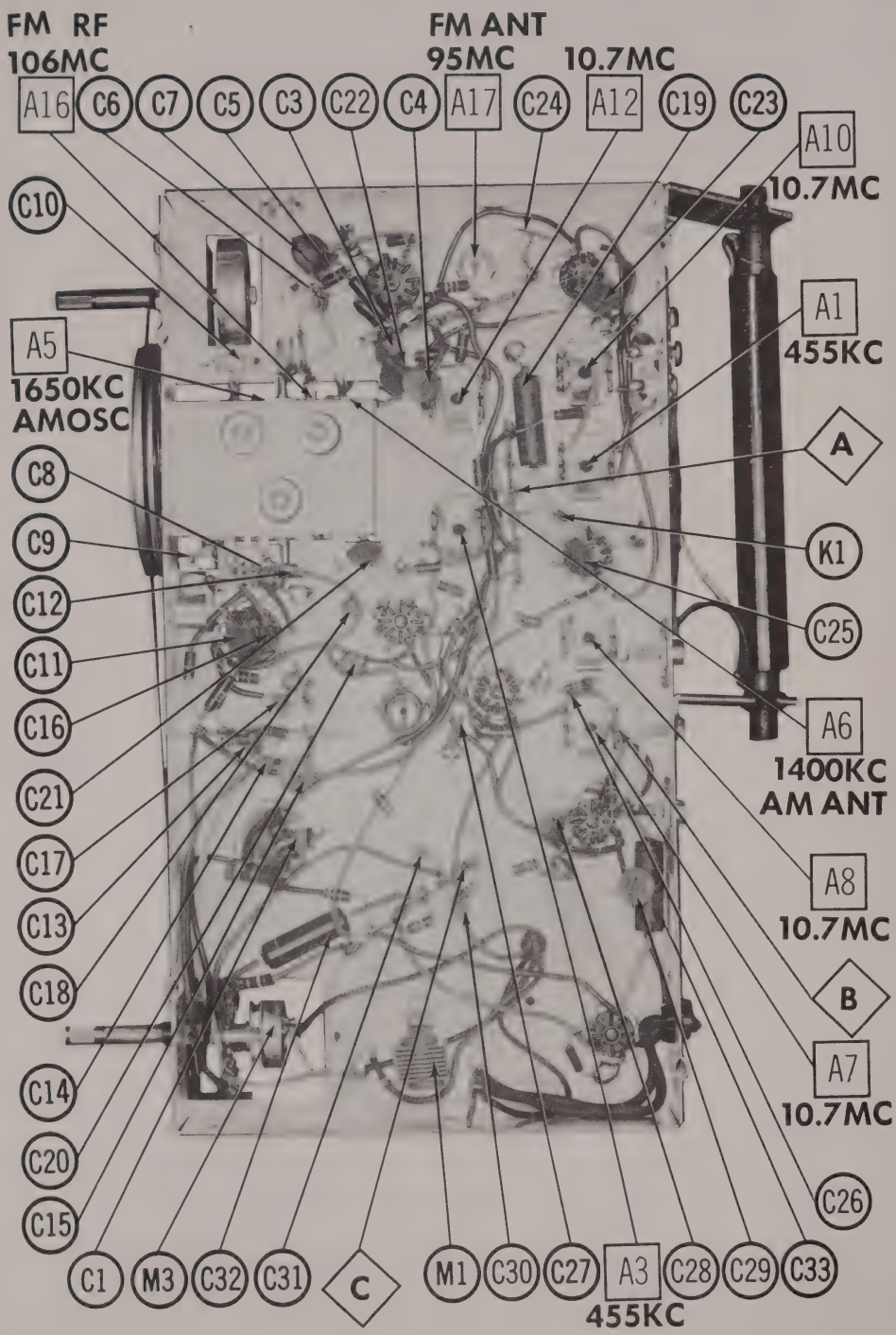
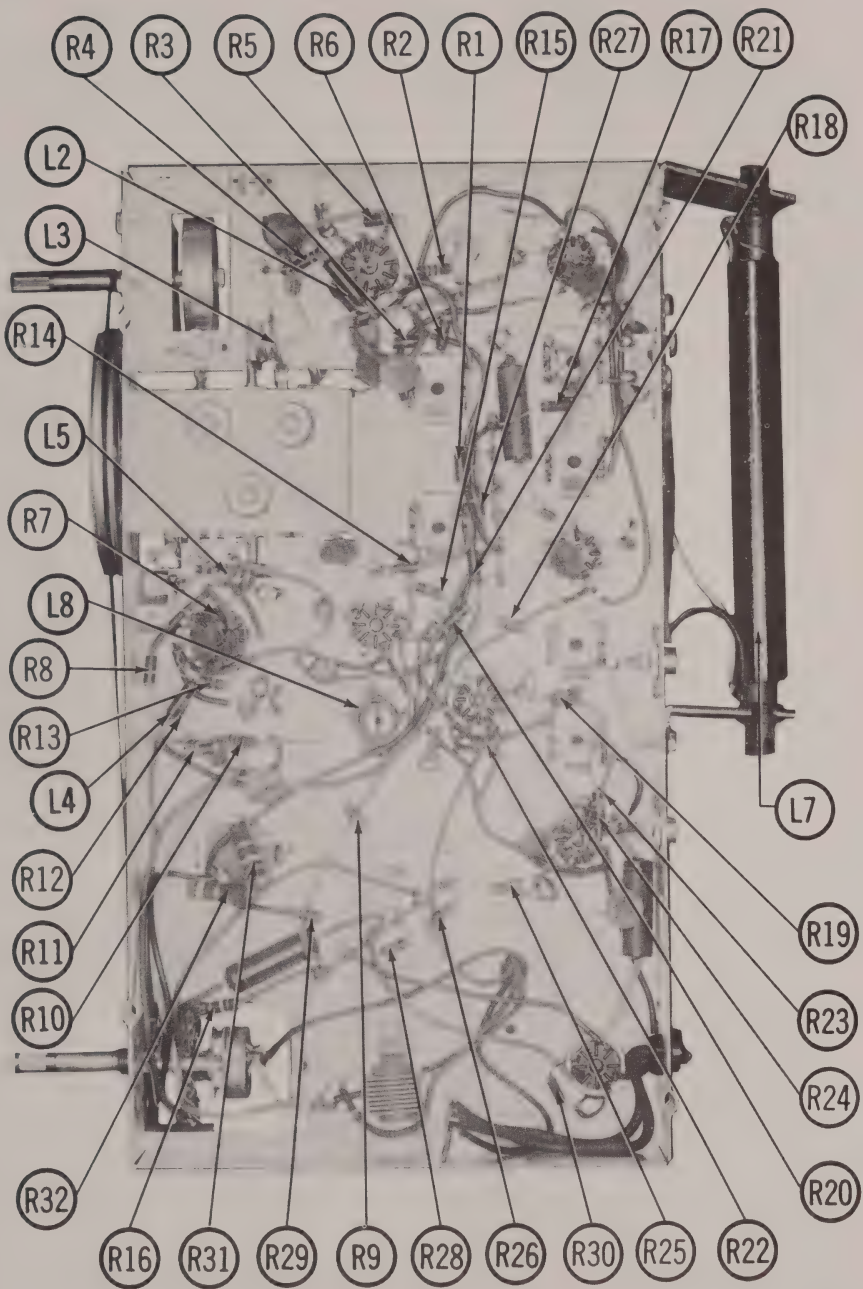
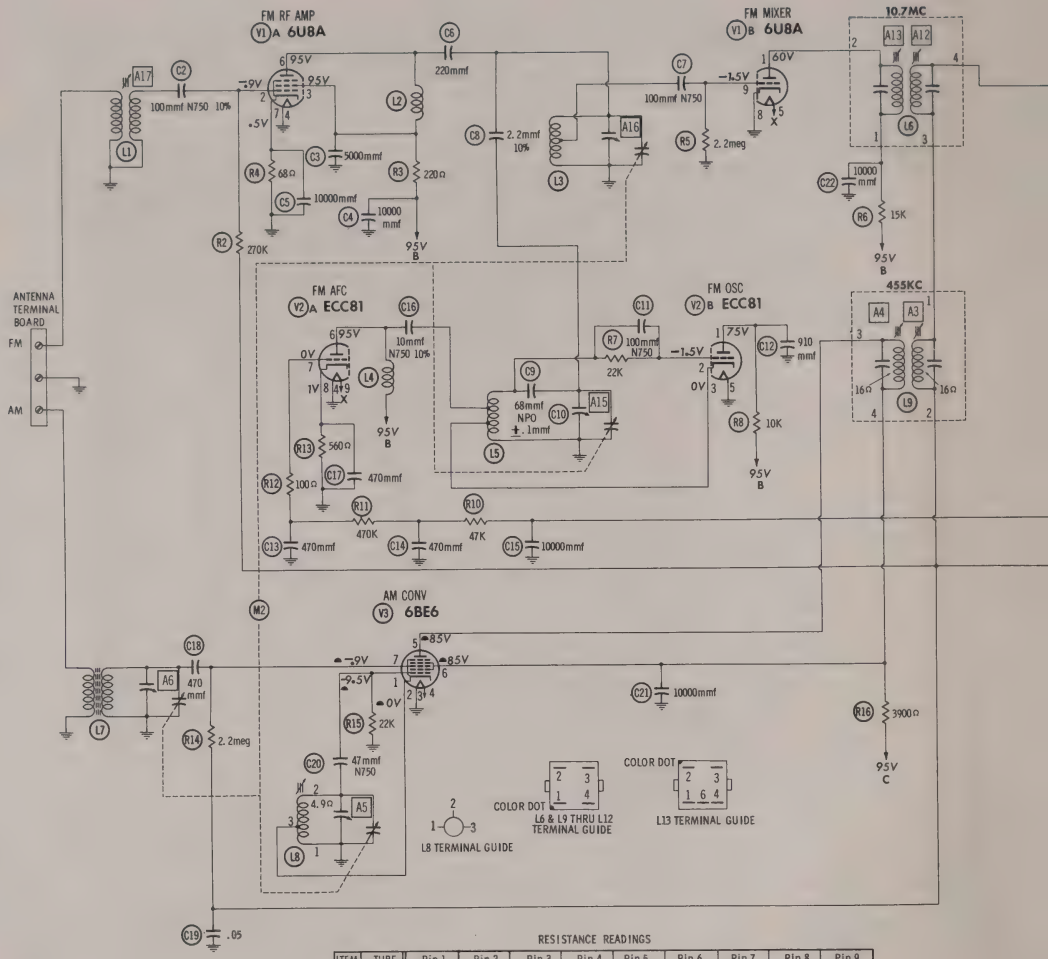


CHASSIS BOTTOM VIEW - ALIGNMENT, CAPACITOR & MISC. IDENT.



CHASSIS BOTTOM VIEW - RESISTOR & INDUCTOR IDENT.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6U8A	†16K	2.6meg	†1000Ω	0Ω	.4Ω	†1000Ω	68Ω	0Ω	2.2meg
V2	ECC81 12AT7	†11K	22K	0Ω	0Ω	0Ω	†1000Ω	520K ▬1.7meg	560Ω	.4Ω
V3	6BE6	22K	.1Ω	0Ω	.4Ω	†▬4700Ω	†▬4700Ω	▬4.6meg		
V4	6BA6	2.4meg	0Ω	0Ω	.4Ω	†1800Ω	†1800Ω	0Ω		
V5	6AU6	270K	0Ω	0Ω	.4Ω	†2800Ω	†2800Ω	0Ω		
V6	6AU6	100K	0Ω	0Ω	.4Ω	†8000Ω	†8000Ω	0Ω		
V7	6AL5	0Ω	100K	.4Ω	0Ω	200K	0Ω	100K		
V8	6C4	†48K	NC	.4Ω	0Ω	†48K	100K	2200Ω		

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
▬ MEASURED IN "AM" POSITION.
† MEASURED FROM OUTPUT OF M1.
NC NO CONNECTION.

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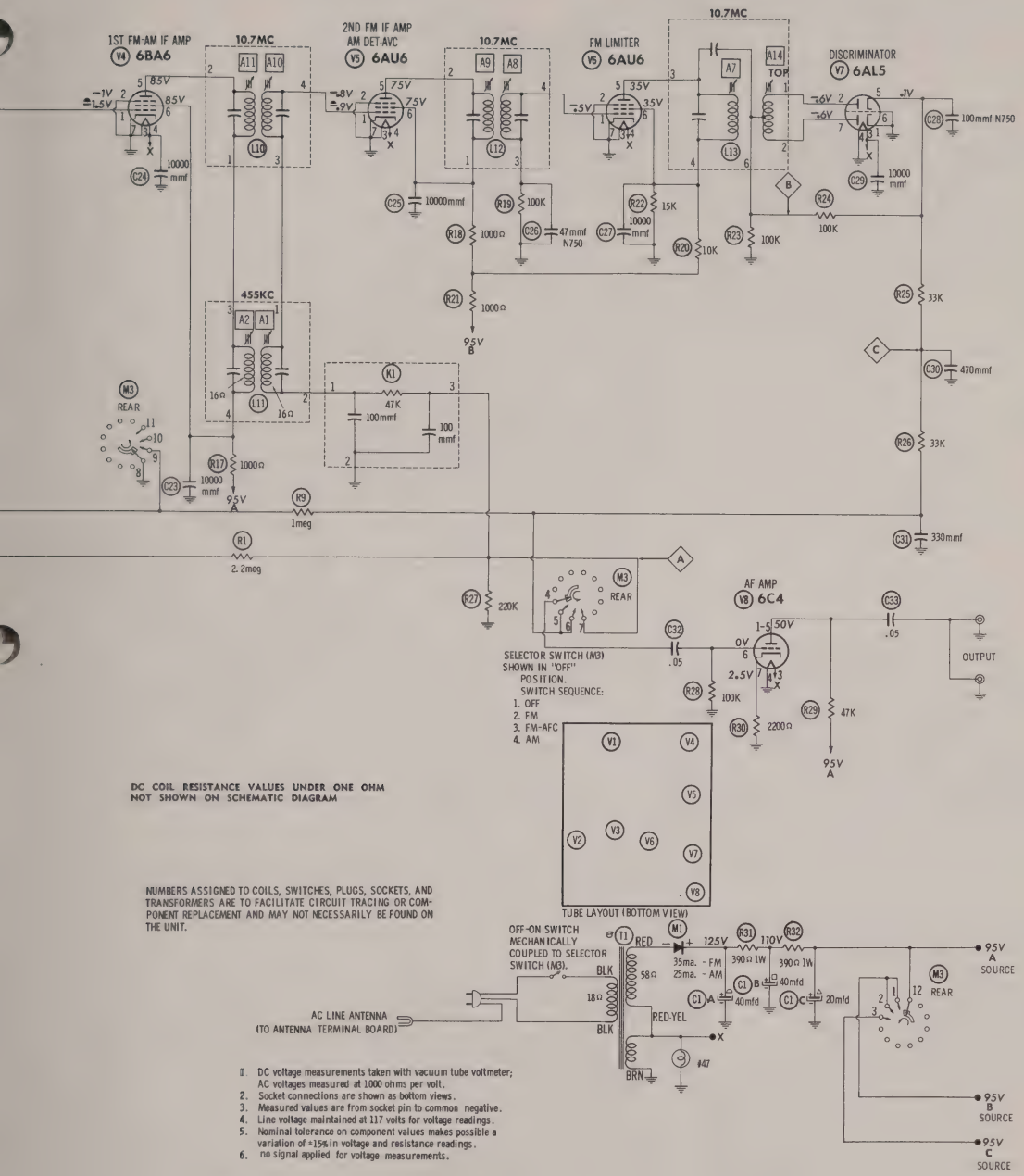


1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. no signal applied for voltage measurements.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

CAPITOL MODELS 954, 954C

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Close tuning gang and set pointer to "D" on logging scale.
Use only enough generator output to provide a usable indication.
Suggested alignment tools:
A1 thru A4, A7 thru A14... GENERAL CEMENT #5097, 8727
WALSCO #2515
A5, A6, A15..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520
A16, A17..... GENERAL CEMENT #5003, 8271, 8275, 8276, 8609, 8721, 8722, 9150, 9298
WALSCO #2516, 2518, 2519

AM ALIGNMENT — SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .01mfd to AM RF Stator lug of tuning gang. Low side to chassis.	455KC (400∿ Mod.)	(AM) Tuning gang fully closed.	DC probe to point Ⓐ. Common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.	Loop	1650KC	Tuning gang fully closed.	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	1400KC	Tune to 1400KC signal.	"	A6	Adjust for maximum deflection.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	High side thru .01mfd to pin 9 (grid) of FM Mixer. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe thru 1meg to point Ⓑ. Common to chassis.	A7, A8, A9, A10, A11, A12, A13	Adjust for maximum deflection.
5.	"	"	"	DC probe to point Ⓒ. Common to chassis.	A14	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE —SELECTOR IN FM POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	High side thru .01mfd to pin 9 (grid) of Mixer. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. amp. thru 27K to point Ⓑ. Low side to chassis.	A7, A8, A9, A10, A11, A12, A13	Adjust for maximum gain and symmetry similar to Fig. 1
5.	"	"	"	Vert. amp. to point Ⓒ. Low side to chassis.	A14	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A7 for maximum amplitude and straightness of cross-over lines.

FM RF ALIGNMENT—SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	High side to FM antenna terminal thru 270Ω carbon resistor. Low side to chassis.	108MC (Unmod.)	(FM) 108MC	DC probe thru 1meg to point Ⓑ Common to chassis.	A15	Adjust for maximum deflection.
7.	"	106MC	106MC	"	A16	"
8.	"	95MC	95MC	"	A17	"

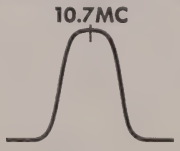


FIG. 1

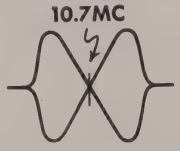


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	FM RF Amp. -FM Mixer	6U8A	V5	2nd FM IF Amp. -AM Det. -AVC.	6AU6
V2	FM Osc. -FM AFC	ECC81/ 12AT7	V6	FM Limiter	6AU6
V3	AM Converter	6BE6	V7	Discriminator	6AL5
V4	1st FM-AM IF Amp.	6BA6	V8	AF Amplifier	6C4

ELECTROLYTIC CAPACITORS

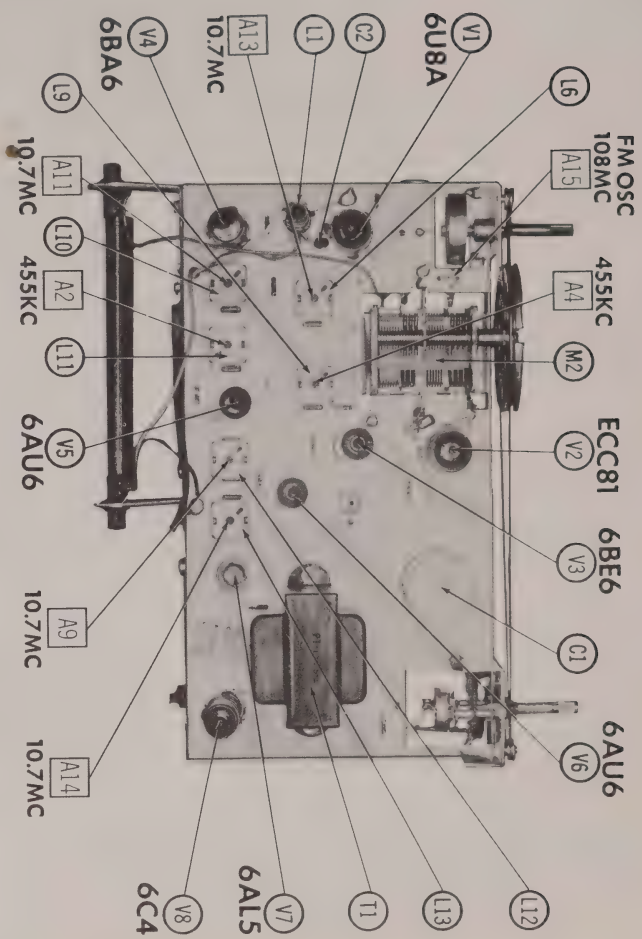
ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	CAPITOL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	200	E212-4		D0020	FP318.74		TVL-3485	
B	■40	200							
C	▲20	200							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	100 N750 10%		N750-SI 100	TCN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C3	5000		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C4	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C5	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C6	220		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C7	100 N750		N750-DI 100	DTN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C8	2.2 10%		NPO-SI 2.2	TCZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C9	68 NPO ± 1mmf		NPO-SI 68	TCZ-68	C10Q68C	CCTO-680	CNO-468	10TCC-Q68
C10		#TC-223-2						
C11	100 N750		N750-DI 100	DTN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C12	910		DI-1000	DD-911	L10T91	CCD-102	GP210	10TS-D10
C13	470		BPD-00047	DD-471	BYA10T47	CCD-471	GP347	10TS-T47
C14	470		BPD-00047	DD-471	BYA10T47	CCD-471	GP347	10TS-T47
C15	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C16	10 N750 10%		N750-DI 10	DTN-10	C10Q1U	CCTN-100	CN7-410	10TCU-Q10
C17	470		BPD-00047	DD-471	BYA10T47	CCD-471	GP347	10TS-T47
C18	470		BPD-00047	DD-471	BYA10T47	CCD-471	GP347	10TS-T47
C19	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S5
C20	47 N750		N750-DI 47	DTN-47	C10Q47U	CCD-470	CN7-447	10TCU-Q47
C21	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C22	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C23	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C24	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C25	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C26	47 N750		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C27	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C28	100 N750		N750-DI 100	DTN-100	C10T1U	CCTO-101	CN7-310	10TCU-T10
C29	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C30	470		BPD-00047	DD-471	BYA10T47	CCD-471	GP347	10TS-T47
C31	330		BPD-00033	DD-331	L10T33	CCD-331	GP333	10TS-T33
C32	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S5
C33	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S5

CHASSIS—TOP VIEW



Capitol Part Number.

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R1	2.2meg	
R2	270K	
R3	220Ω	
R4	68Ω	
R5	2.2meg	
R6	15K	
R7	22K	
R8	10K	
R9	1meg	
R10	47K	
R11	470K	

ITEM No.	RATING	REMARKS
R12	100Ω	
R13	560Ω	
R14	2.2meg	
R15	22K	
R16	3900Ω	
R17	1000Ω	
R18	1000Ω	
R19	100K	
R20	10K	
R21	1000Ω	
R22	15K	

ITEM No.	RATING	REMARKS
R23	100K	
R24	100K	
R25	33K	
R26	33K	
R27	220K	
R28	100K	
R29	47K	
R30	2200Ω	
R31	390Ω 1W	
R32	390Ω 1W	

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	CAPITOL PART No.	INTERNATIONAL PART No.	ITT PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1	.035A	R-837-1 *	T100 *	1235AH *	100A *	SR200 ♦	* Selenium Type ♦ Silicon Type

MISCELLANEOUS

ITEM No.	PART NAME	CAPITOL PART No.	NOTES
M2	Tuning Cap.	V-222B-2	FM-AM, 4 Gang (AM Sections: Ant. 40-290mmf, Osc. 15-120mmf)
M3	Switch	8089-3	Selector

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	CAPITOL PART No.	REPLACEMENT DATA
K1	AM Det. RF Filter	100mmf, 100mmf, 47K	C209	Aerovox PA-97 Centralab PC-50 Cornell-Dubilier 111TM1 Sprague D-1

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Pointer	P-989-A	
Dial Glass	DG604	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		CAPITOL PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	FM Ant. Trans.	1102C4						
L2	RF Choke	1104C-9	19-1008	19-1008	SW-631	4609		5.6uh
L3	FM RF Trans.	1100-3						
L4	RF Choke	1104C-3	19-1002	19-1002	SW-630	4606		2.7uh
L5	FM Osc. Coil	O-156-5						
L6	1st FM IF Trans.	1038B-5	16-3487	16-3487	FM-254	1463		
L7	Loopstick	L-155B-4	14-7002	14-7002	BC-418			
L8	AM Osc. Coil	1101C-3				70-OSC		
L9	1st AM IF Trans.	1-110	16-6758	16-6758	BC-352	12-C1	RF-1	
L10	2nd FM IF Trans.	1038B-5	16-3487	16-3487	FM-254	1463		
L11	2nd AM IF Trans.	1-110	16-6758	16-6758	BC-353	12-C2	RF-2	
L12	3rd FM IF Trans.	1038B-5	16-3487	16-3487	FM-254	1463		
L13	Discriminator	1038B-2	17-3494	17-3494	FM-253	1464		

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

TRANSFORMER (POWER)

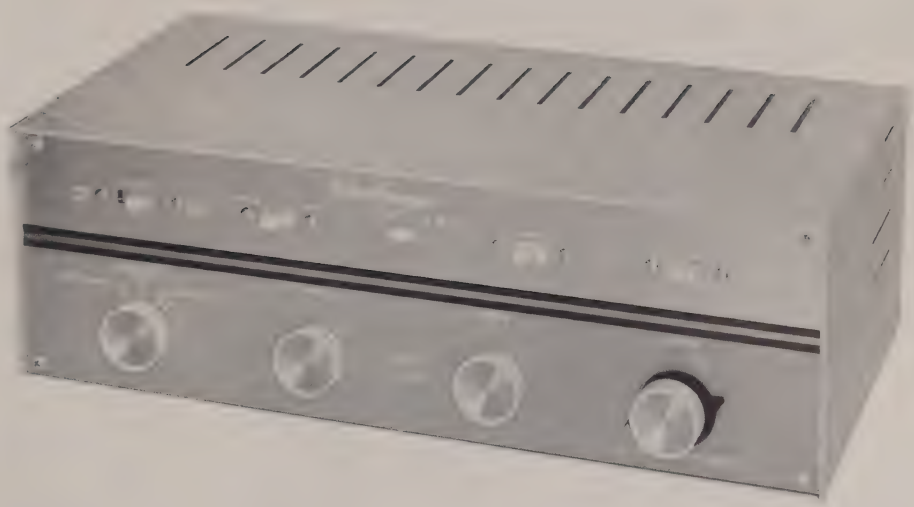
ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	CAPITOL PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V Ⓐ .56A	105V Ⓐ .035A Tap Ⓐ 6.3V Ⓐ 2.5A		PT-157B-1①	26R38	P-3045		PA8421	26R38	

① Alternate Part #PT-157B-2.

PHOTOFACT® Folder

CHALLENGER
MODEL AC220

CHALLENGER
MODEL AC220



CHALLENGER
MODEL AC220

TRADE NAME	Challenger Model AC220
MANUFACTURER	Bogen-Presto Co., A Div. of the Siegler Corp., P. O. Box 500, Paramus, N. J.
TYPE SET	AC Operated 8 Tube Stereo Amplifier
POWER SUPPLY	110-120 Volts AC, 60 Cycles RATING 88 Watts, .8 Amp. @ 117 Volts AC

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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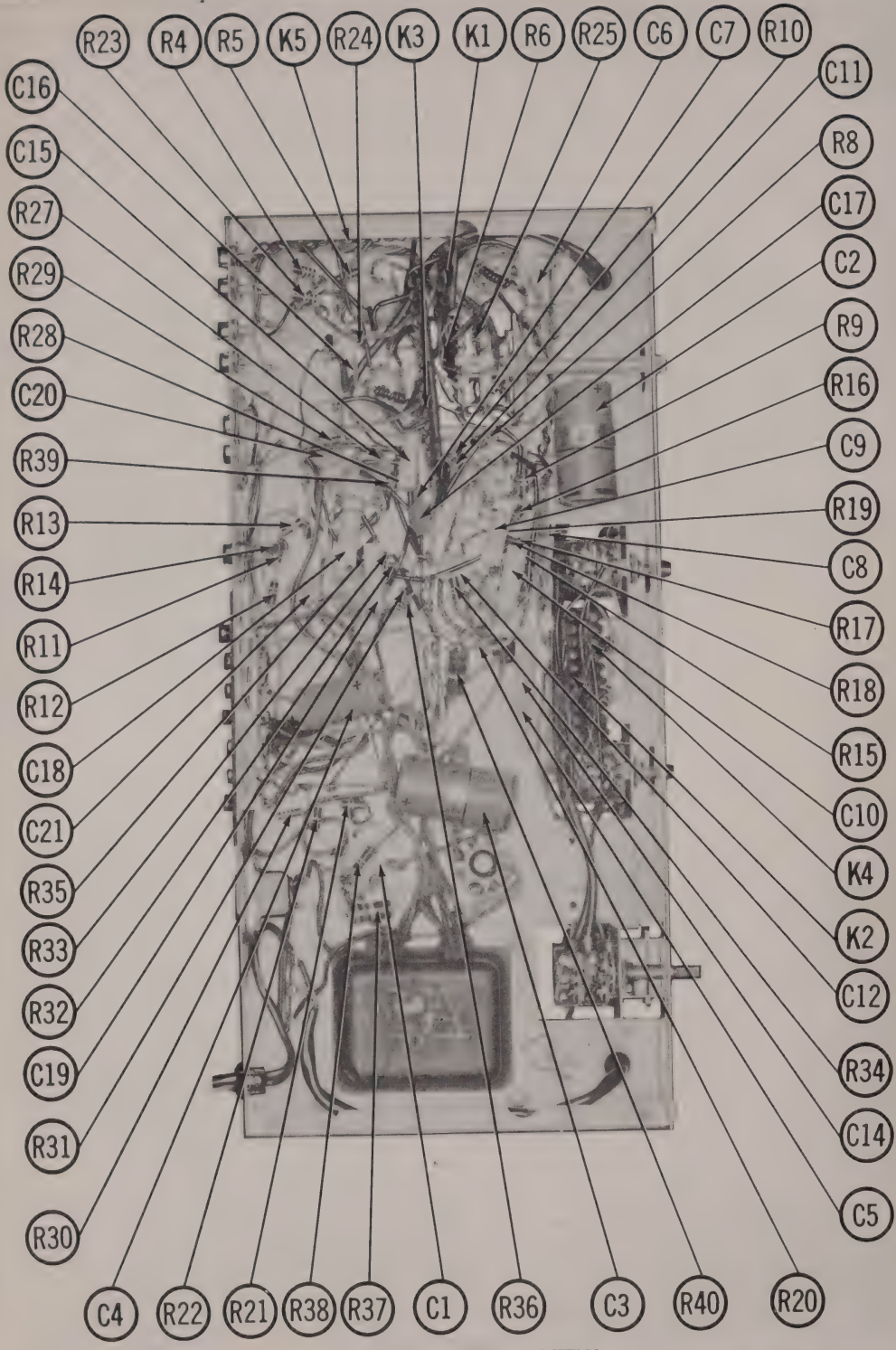
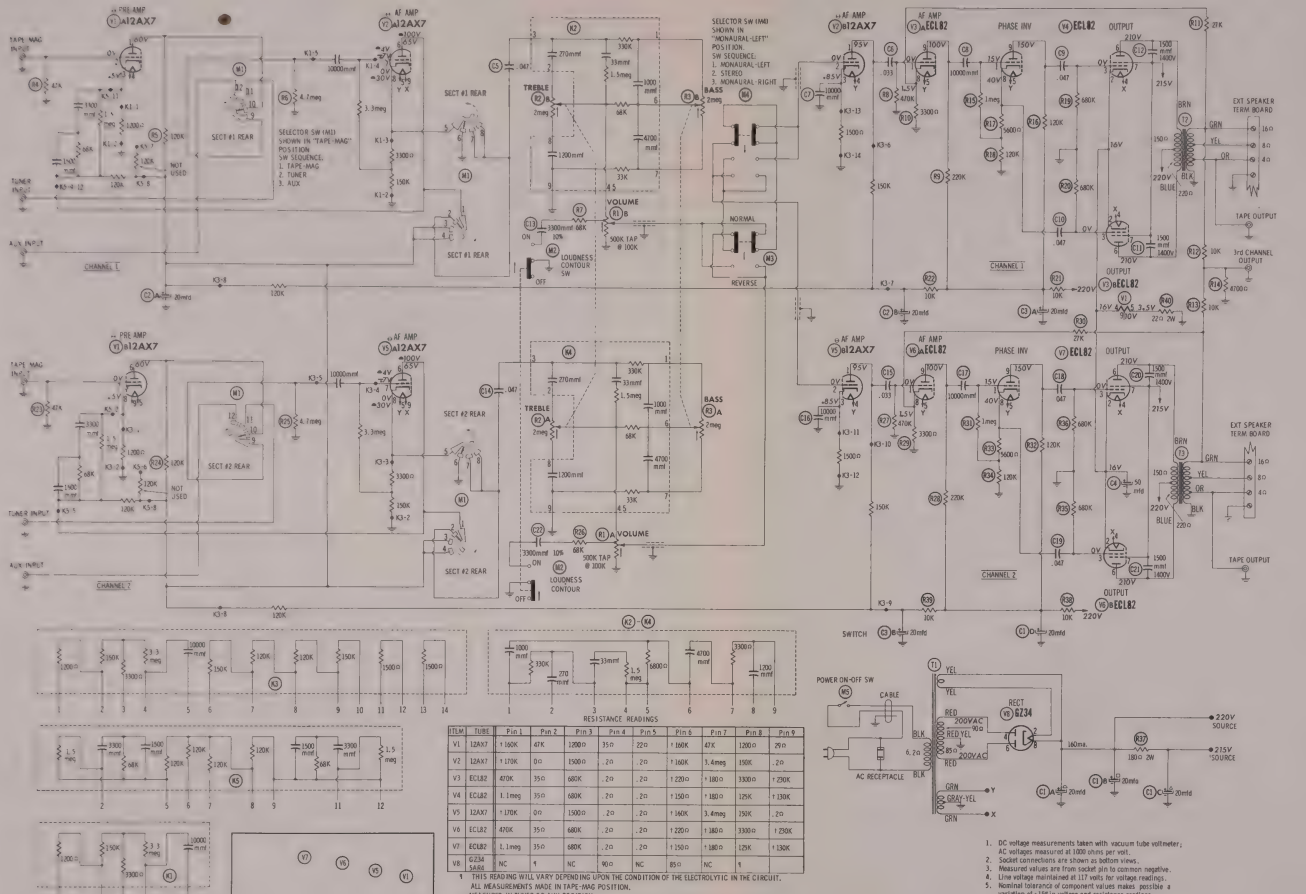


CHASSIS BOTTOM VIEW



ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	↑160K	47K	1250Ω	35Ω	22Ω	↑160K	47K	1200Ω	29Ω
V2	12AX7	↑170K	0Ω	1500Ω	2Ω	2Ω	↑160K	3.4meg	150K	2Ω
V3	ECL82	470K	35Ω	680K	2Ω	2Ω	↑220Ω	↑180Ω	330Ω	↑230K
V4	ECL82	1.1meg	35Ω	680K	2Ω	2Ω	↑150Ω	↑180Ω	125K	↑130K
V5	12AX7	↑170K	0Ω	1500Ω	2Ω	2Ω	↑160K	3.4meg	250K	2Ω
V6	ECL82	470K	35Ω	680K	2Ω	2Ω	↑220Ω	↑180Ω	330Ω	↑230K
V7	ECL82	1.1meg	35Ω	680K	2Ω	2Ω	↑150Ω	↑180Ω	125K	↑130K
V8	GZ34 5AR4	NC	¶	NC	90Ω	NC	85Ω	NC	¶	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
ALL MEASUREMENTS MADE IN TAPE-MAG POSITION.
↑ MEASURED IN TUNER OR AUX POSITION
MEASURED FROM PIN 8 OF V8.
NC NO CONNECTION

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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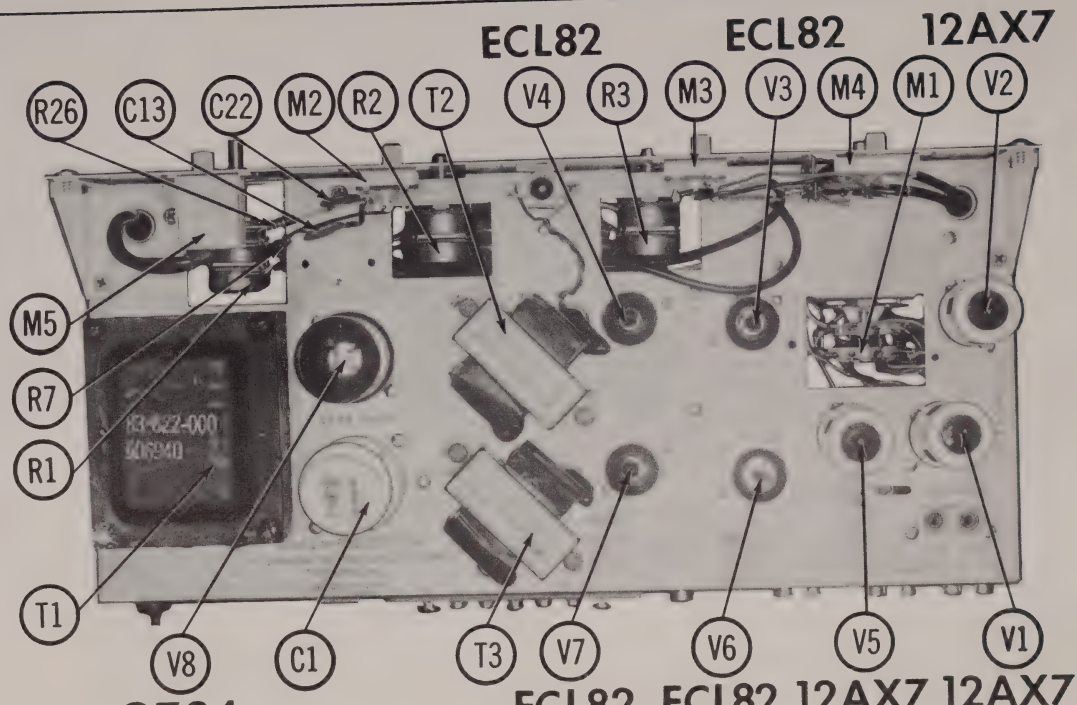
CHALLENGER MODEL AC220



CHASSIS TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (CBS • GENERAL ELECTRIC)
V1	Channel 1 Preamp. - Channel 2 Preamp.	12AX7 (ECC83/12AX7)*
V2	Channel 1 AF Amp.	12AX7 (ECC83/12AX7)*
V3	Channel 1 AF Amp. - Channel 1 Output	ECL82
V4	Channel 1 Phase Inv. - Channel 1 Output	ECL82

ITEM No.	USE	TYPE (RAYTHEON • SYLVANIA)
V5	Channel 2 AF Amp.	12AX7 (ECC83/12AX7)*
V6	Channel 2 AF Amp. - Channel 2 Output	ECL82
V7	Channel 2 Phase Inv. - Channel 2 Output	ECL82
V8	Rectifier	GZ34/5AR4

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	Challenger PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲20	250	79-010-023	AFH4-14	CO270	FP444	TMQ-12	TVL-3532	
B	■20	250			BR2025	FP444		TVA-1508	
C	20	250							
D	▲20	250							
C2A	20	250	79-002-002	PRS2330	BBRD2225	TCD55	TDLD-19	TVA-2515	
B	20	250							
C3A	20	250	79-002-002	PRS2330	BBRD2225	TCD55	TDLD-19	TVA-2515	
B	20	250							
C4	50	50	79-001-057	PRS1350	BR505	TC39	TD-50-50	TVA-1308	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C6	.033 200V		P288N-033	DD-303	CUB2S33	4DP-2-333	GEM-4133	4TM-S33
C7	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C8	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C9	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C10	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C11	1500 1400V		HVD-15-1500	DD16-152	HVB20D15	16DP-1-152	2HV-215	30GA-D15
C12	1500 1400V		HVD-15-1500	DD16-152	HVB20D15	16DP-1-152	2HV-215	30GA-D15
C13	3300 10%		DI-3300		PM6D33	CCD-332	JL-332	10TS-D33
C14	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C15	.033 200V		P288N-033	DD-303	CUB2S33	4DP-2-333	GEM-4133	4TM-S33
C16	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C17	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C18	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C19	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C20	1500 1400V		HVD-15-1500	DD16-152	HVB20D15	16DP-1-152	2HV-215	30GA-D15
C21	1500 1400V		HVD-15-1500	DD16-152	HVB20D15	16DP-1-152	2HV-215	30GA-D15
C22	3300 10%		DI-3300		PM6D33	CCD-332	JL-332	10TS-D33

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	Challenger PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K 100K Tap	½	77-001-485	F1-44		† QJ-1267R	■ UE4106	Volume, Channel 2
B	500K 100K Tap	½		R2-44				Volume, Channel 1
R2A	2meg	½	77-001-483	B-75	AD47-2meg-Z		FA26L	Treble, Channel 2
B	2meg	½		SR-75	Not Req.		RU26L	Treble, Channel 1
C	Shaft			Not Req.	FS-3		CS3500	
R3A	2meg	½	77-001-483	B-75	AD47-2meg-Z		FA26L	Bass, Channel 2
B	2meg	½		SR-75	Not Req.		RU26L	Bass, Channel 1
C	Shaft			Not Req.	FS-3		CS3500	

† "Concentrikit" equivalent: K-6 Kit with Base Elements & Shafts: B13-133X, P17-031 (Panel) B13-133X, R1-111 (Rear)

■ "STA-LOC" equivalent: FA55T15, RU55T124, OF1000, IS1437.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	ITEM No.	RATING	ITEM No.	RATING	ITEM No.	RATING	ITEM No.	RATING	ITEM No.	RATING
R4	47K	R11	27K	R18	120K	R25	4.7meg	R32	120K	R39	10K
R5	120K	R12	10K	R19	680K	R26	68K	R33	5600Ω	R40	22Ω 2W
R6	4.7meg	R13	10K	R20	680K	R27	470K	R34	120K		
R7	68K	R14	4700Ω	R21	10K	R28	220K	R35	680K		
R8	470K	R15	1meg	R22	10K	R29	3300Ω	R36	680K		
R9	220K	R16	120K	R23	47K	R30	27K	R37	180Ω 2W		
R10	3300Ω	R17	5600Ω	R24	120K	R31	1meg	R38	10K		

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Challenger PART No.	REPLACEMENT DATA
K1	Audio Coupling	10000mmf, 1200Ω, 3300Ω, 150K, 3.3meg	78-911-001	
K2	Tone Comp.	33mmf, 270mmf, 1000mmf, 1200mmf, 4700mmf, 33K, 68K, 330K, 1.5meg	78-910-001	
K3	Audio Coupling	10000mmf, 1200Ω, (2) 1500Ω, (2) 120K, (3) 150K, 3300Ω, 3.3meg	78-909-001	
K4	Tone Comp.	33mmf, 270mmf, 1000mmf, 1200mmf, 4700mmf, 33K, 68K, 330K, 1.5meg	78-910-001	
K5	Audio Coupling	(2) 1500mmf, (2) 3300mmf, (2) 68K, (4) 120K, (2) 1.5meg	78-916-001	

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	RATING SEC. 4	RATING SEC. 5	Challenger PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V@ .8A	400 VCT @ .160A	5V@ 1.9A	6.3 VCT @2.5A			83-622-000						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	Challenger PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	4500Ω CT	16Ω Tap @8Ω, 4Ω	83-306-000	24S17				24S17		
T3	4500Ω CT	16Ω Tap @8Ω, 4Ω	83-306-000	24S17				24S17		

MISCELLANEOUS

ITEM No.	PART NAME	Challenger PART No.	NOTES
M1	Switch	81-001-507	Selector
M2	Switch		Loudness Contour (DPDT, Slide Type)
M3	Switch	81-003-002	Normal-Reverse (DPDT, Slide Type)
M4	Switch	81-003-01	Monaural-Stereo (3 Position, Slide Type)
M5	Switch	81-003-004	Off-On Power (SPDT, Slide Type)

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder

DYNAMIC MODELS A45-25R, CT36-R, CT44-25R, SH48-25R (CH. 2500)

DYNAMIC MODELS A45-25R, CT36-R, CT44-25R, SH48-25R (CH. 2500)

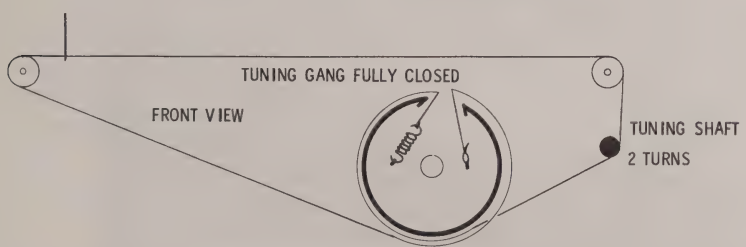
MODEL CT44-25R

DYNAMIC MODELS A45-25R, CT36-R, CT44-25R, SH48-25R (CH. 2500)

TRADE NAME	Dynamic Models A45-25R, CT36-R, CT44-25R, SH48-25R (Ch. 2500)		
MANUFACTURER	Dynamic Electronics New York, Inc., 87-46 123rd St., Richmond Hill 18, Long Island, N. Y.		
TYPE SET	AC Operated 12 Tube FM-AM Receiver With 4 Speed Automatic Record Changer		
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING	93 Watts, .85 Amp. @117 Volts AC (FM)
TUNING RANGE—BROADCAST	505 — 1640KC	FREQ. MOD.	88 — 108MC

FOR SERVICE INFORMATION ON RECORD CHANGER — SEE SIMILAR GLASER-STEERS GS-77 (REVISED) — PHOTOFACT SET 482 FOLDER 11

DIAL CORD STRINGING



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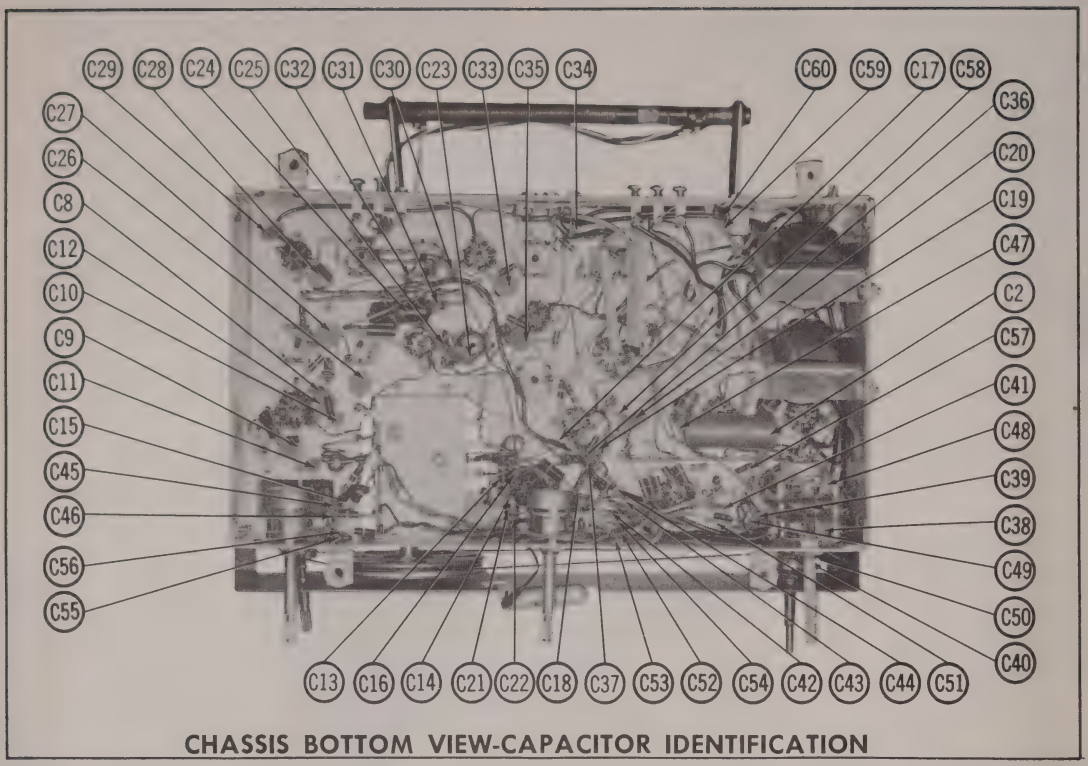
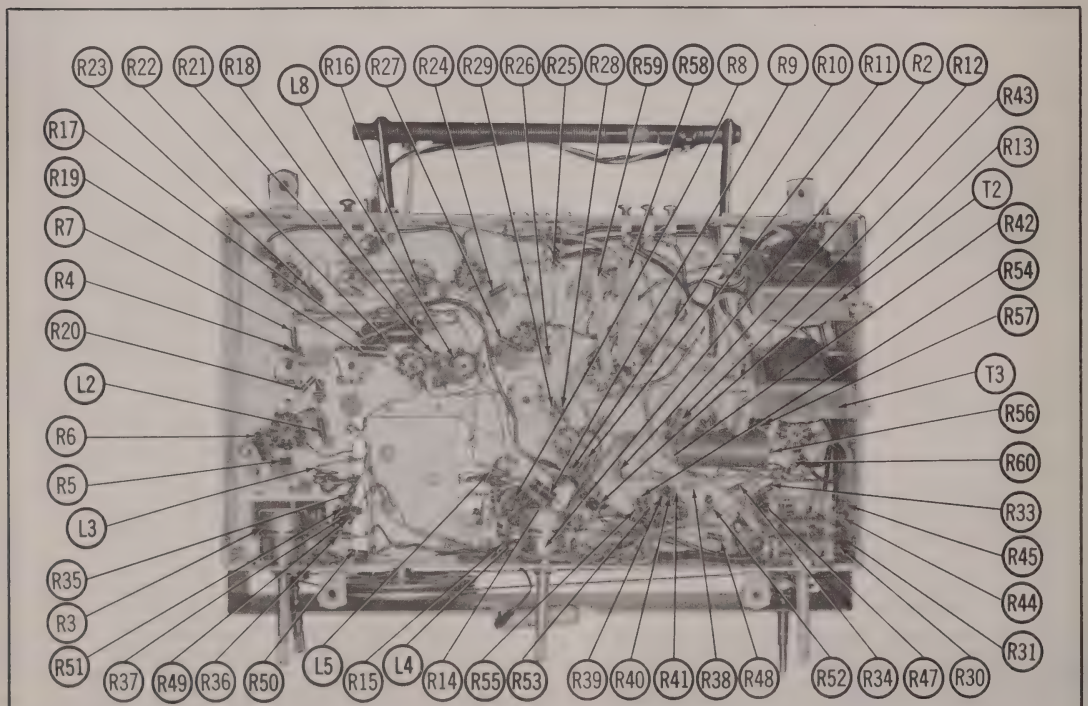
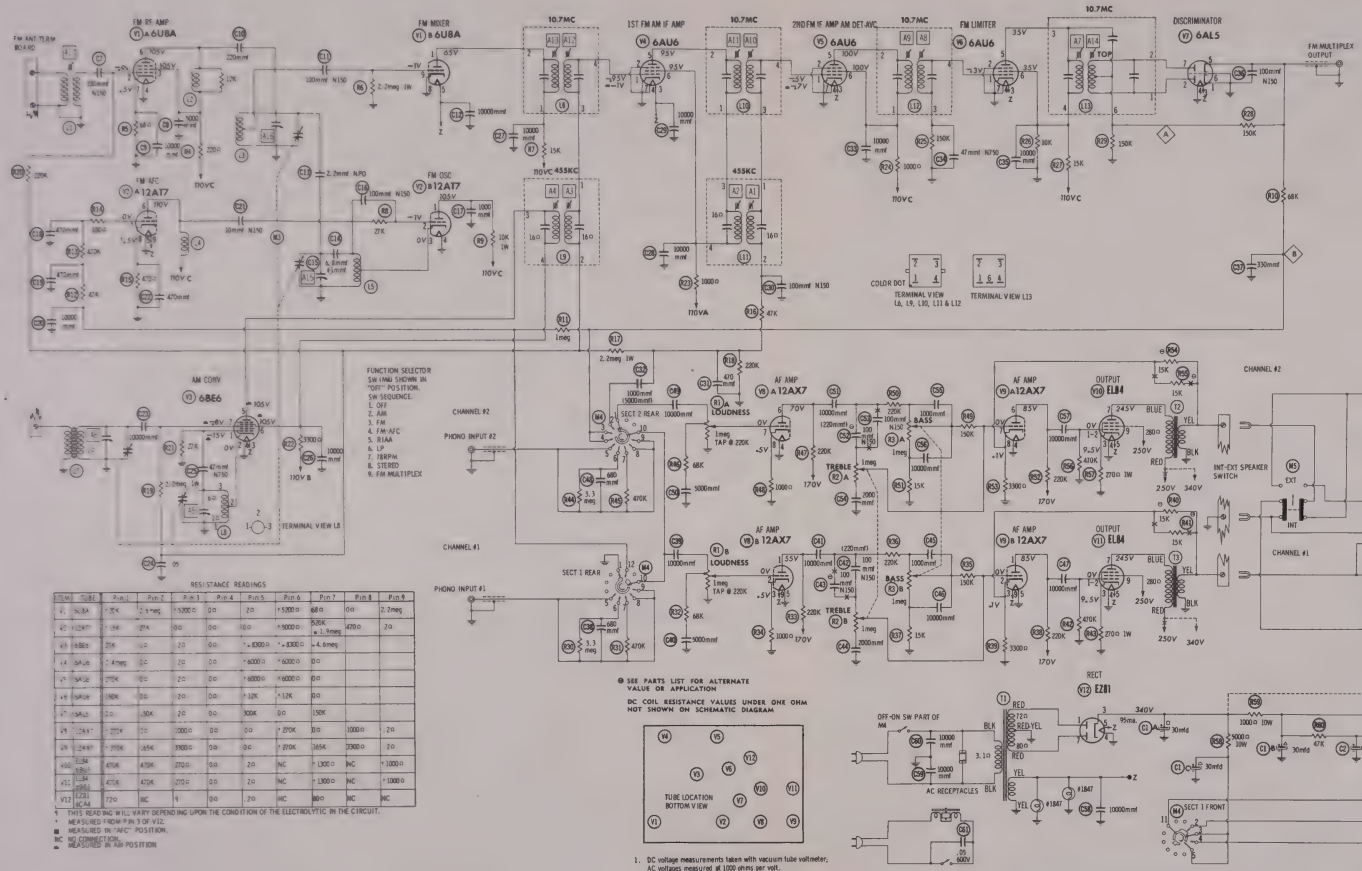
SET 488 FOLDER 8



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6U8A	* 15K	2.2 meg	* 1300 Ω	0 Ω	20	* 5000 Ω	68 Ω	0 Ω	2.2 meg
V2	12AT7	* 15K	47K	0 Ω	0 Ω	0 Ω	* 9000 Ω	520K ■ 1.1 meg	470 Ω	20
V3	6BE6	25K	0 Ω	20	0 Ω	0 Ω	* ∞ 8300 Ω	* ∞ 4.6 meg		
V4	6AU6	* 2.4 meg	0 Ω	20	0 Ω	0 Ω	* 6000 Ω	* 6000 Ω	0 Ω	
V5	6AU6	275K	0 Ω	20	0 Ω	0 Ω	* 6000 Ω	* 6000 Ω	0 Ω	
V6	6AU6	150K	0 Ω	20	0 Ω	0 Ω	* 12K	* 12K	0 Ω	
V7	6AL5	0 Ω	150K	20	0 Ω	0 Ω	100K	0 Ω	150K	
V8	12AX7	* 275K	0 Ω	20	0 Ω	0 Ω	* 270K	0 Ω	1000 Ω	20
V9	12AX7	* 275K	165K	3300 Ω	0 Ω	0 Ω	* 270K	165K	3300 Ω	20
V10	EL84	415K	415K	270 Ω	0 Ω	20	NC	* 1300 Ω	NC	* 1000 Ω
V11	EL84	415K	415K	270 Ω	0 Ω	20	NC	* 1300 Ω	NC	* 1000 Ω
V12	EZ81 6CA4	720 Ω	NC	0	0 Ω	20	NC	80 Ω	NC	NC

* THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
* MEASURED FROM PIN 3 OF V12.
■ MEASURED IN "AFC" POSITION.
NC NO CONNECTION.
▲ MEASURED IN AM POSITION

⊕ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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DYNAMIC MODELS A45-25R, CT36-R, CT44-25R, SH48-25R (CH. 2500)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools:

A1 thru A4, A7 thru A14	GENERAL CEMENT #5097, 8727 WALSCO #2515
A5, A6, A15	GENERAL CEMENT #5004, 5008, 5009 WALSCO #2520
A16	GENERAL CEMENT #8721, 8722 WALSCO #2519

AM ALIGNMENT — SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .01mfd to pin 7 (grid) of AM Converter. Low side to chassis.	455KC (400∿ Mod.)	(AM) Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Loop	1600KC	1600KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	1400KC	Tune to 1400KC Signal.	"	A6	Adjust for maximum output while rocking tuning gang.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	High side thru .01mfd to pin 9 (grid) of FM Mixer. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe thru 1meg to point Ⓐ. Common to chassis.	A7, A8, A9, A10, A11, A12, A13	Adjust for maximum deflection.
5.	"	"	"	DC probe to point Ⓑ. Common to chassis.	A14	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE—SELECTOR IN FM POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

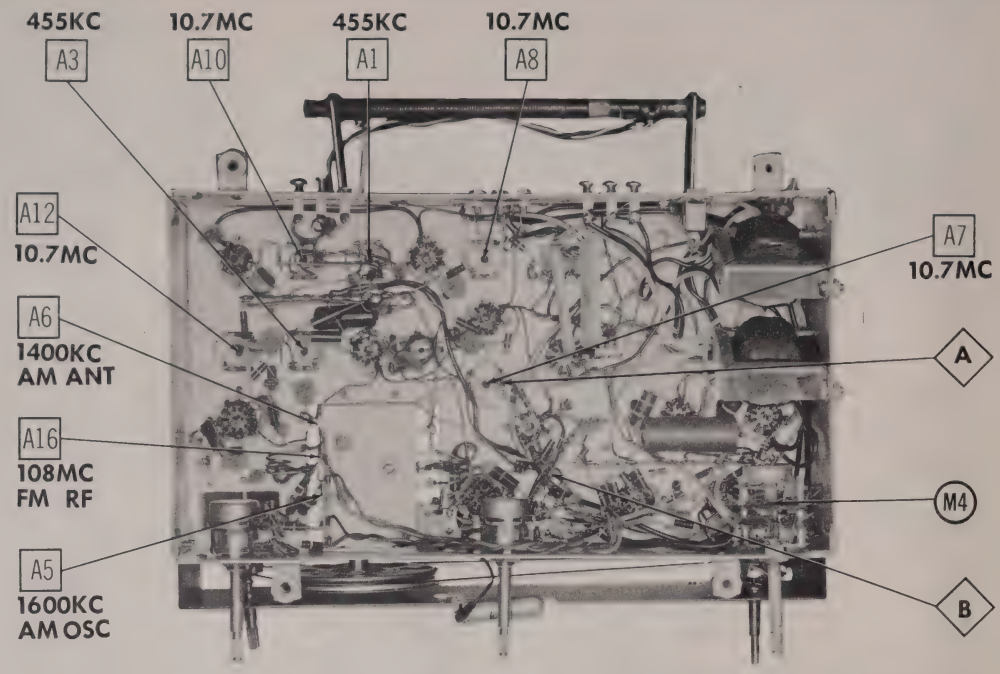
	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	High side thru .01mfd to pin 9 (grid) of FM Mixer. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. Amp. thru 27K to point Ⓐ. Low side to chassis.	A7, A8, A9, A10, A11, A12, A13	Adjust for maximum gain and symmetry of response similar to Fig. 1.
5.	"	"	"	Vert. amp. to point Ⓑ. Low side to chassis.	A14	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A7 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT—SELECTOR IN FM POSITION

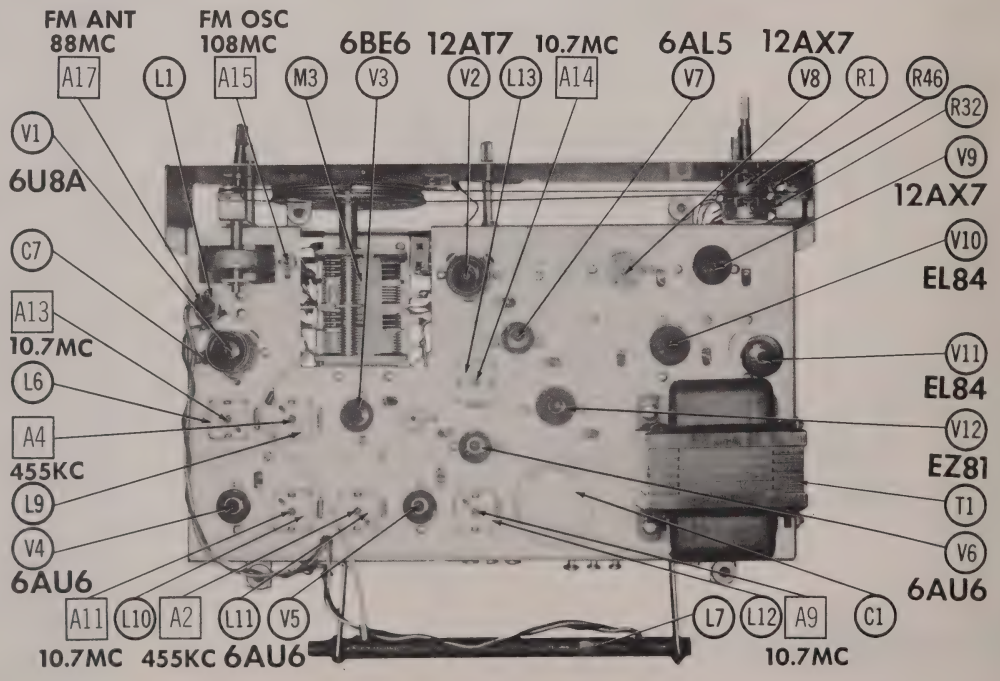
	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	High side thru 270Ω to FM antenna terminal. Low side to chassis.	108MC (Unmod.)	(FM) 108MC	DC probe to point Ⓐ. Common to chassis.	A15, A16	Adjust for maximum deflection.
7.	"	88MC	88MC	"	A17	"

FIG. 1

FIG. 2



CHASSIS BOTTOM VIEW - ALIGNMENT & MISC. IDENT.



CHASSIS - TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (CBS • GENERAL ELECTRIC • RAYTHEON • SYLVANIA)
V1	FM RF Amp. -FM Mixer	6U8A
V2	FM AFC-FM Osc.	12AT7
V3	AM Converter	6BE6
V4	1st FM-AM IF Amp.	6AU6
V5	2nd FM IF Amp-Det. -AVC	6AU6
V6	FM Limiter	6AU6
V7	Discriminator	6AL5
V8	Channel 1 AF Amp. - Channel 2 AF Amp.	12AX7
V9	Channel 1 AF Amp. - Channel 2 AF Amp.	12AX7
V10	Channel 1 Output	EL84/6BQ5
V11	Channel 2 Output	EL84/6BQ5
V12	Rectifier	EZ81/6CA4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA DYNAMIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■30	450		AFH3-39	C0300	FP376. 7	TMT-35	TVL-3782	
B	▲30	450							
C	▬30	450							
C2	5	400		PRS1710	BR445	TC70	TD-4-450	TVA-1702	
C3	20	25NP		PRS7350	BR505 †	TCN3520		TVANS-1204. 6*	
C4	4	25NP		PRS7405	BBR8-150 †	TCN504		TVAS-1302. 5*	
C5	20	25NP		PRS7350	BR505 †	TCN3520		TVANS-1204. 6*	
C6	4	25NP		PRS7405	BBR8-150 †	TCN504		TVAS-1302. 5*	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
† Use 2 units. Connect negative terminals together. Connect positive terminals into circuit the same as the original non-polarized unit.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C7	100 N150					*		10TCP-T10
C8	5000		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C9	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C10	220		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C11	100 N150					*		10TCP-T10
C12	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C13	2. 2 NPO		NPO-SI 2. 2	TCZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C14	6. 8 ± 1mmf		NPO-SI 6. 8	TCZ-6R8	C10V68C	CCTO-6R8	CNO-568	10TCC-V68
C15								
C16	100 N150					*		10TCP-T10
C17	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C18	470		BPD-00047	DD-471	BYA10T47	CCD-471	GP347	10TS-T47
C19	470		BPD-00047	DD-471	BYA10T47	CCD-471	GP347	10TS-T47
C20	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C21	10 N150					*		10TCP-Q10
C22	470		BPD-00047	DD-471	BYA10T47	CCD-471	GP347	10TS-T47
C23	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C24	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S5
C25	47 N750		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C26	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C27	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C28	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C29	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C30	100 N150					*		10TCP-T10
C31	470		BPD-00047	DD-471	BYA10T47	CCD-471	GP347	10TS-T47
C32	1000	(5000) †	BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C33	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C34	47 N750		N750-DI 47	DTN-47	C10Q47C	CCTN-470	CN7-447	10TCU-Q47
C35	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C36	100 N150					*		10TCP-T10
C37	330		BPD-00033	DD-331	L10T33	CCD-331	GP333	10TS-T33
C38	680		BPD-00068	DD-681	BYA10T68	CCD-681	GP368	10TS-T68
C39	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C40	5000		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C41	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C42	100 N150	(220) †				*		10TCP-T10

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C43	100 N150	Note 1				*		10TCP-T10
C44	2000		BPD-002	DD-202	BYA10D2	CCD-202	GP220	5HK-D20
C45	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C46	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C47	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C48	680		BPD-00068	DD-681	BYA10T68	CCD-681	GP368	10TS-T68
C49	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C50	5000		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C51	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C52	100 N150	(220) †				*		10TCP-T10
C53	100 N150	Note 1				*		10TCP-T10
C54	2000		BPD-002	DD-202	BYA10D2	CCD-202	GP220	5HK-D20
C55	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C56	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C57	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C58	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C59	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C60	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C61	.05 600V		P688N-05	DD-503	CUB6S5	6DP-3-503	GEM-615	6TM-S5

Note 1. Not used in some versions.
† Alternate Value.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA DYNAMIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½	CM23497					Loudness, Channel 2
	220K Tap							
B	1meg	½						Loudness, Channel 1
	220K Tap							
R2A	1meg	½	CM23499	B-70	AD47-1meg-Z		FBI6A	Treble, Channel 2
B	1meg	½		SR-70	Not Req.		RU16A	Treble, Channel 1
C	Shaft			Not Req.	KSS-3		CS3500	
R3A	1meg	½	CM23499	B-70	AD47-1meg-Z		FBI6A	Bass, Channel 2
B	1meg	½		SR-70	Not Req.		RU16A	Bass, Channel 1
C	Shaft			Not Req.	KSS-3		CS3500	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R4	220Ω	
R5	68Ω	
R6	2. 2meg 1W	
R7	15K	
R8	27K	
R9	10K 1W	
R10	68K	
R11	1meg	
R12	47K	
R13	470K	
R14	100Ω	
R15	470Ω	
R16	47K	
R17	2. 2meg 1W	
R18	220K	
R19	2. 2meg 1W	
R20	220K	
R21	27K	
R22	3300Ω	
R23	1000Ω	
R24	1000Ω	
R25	150K	
R26	10K	
R27	15K	
R28	150K	
R29	150K	
R30	3. 3meg	
R31	470K	
R32	68K	
R33	220K	
R34	1000Ω	
R35	150K	
R36	220K	
R37	15K	
R38	220K	
R39	330Ω	
R40	15K	Note 1
R41	15K	Note 1
R42	470K	
R43	270Ω 1W	
R44	3. 3meg	
R45	470K	
R46	68K	
R47	220K	
R48	1000Ω	
R49	150K	
R50	220K	
R51	15K	
R52	220K	
R53	3300Ω	
R54	15K	Note 2
R55	15K	Note 2
R56	470K	
R57	270Ω 1W	
R58	5000Ω 10W	
R59	1000Ω 10W	
R60	47K	

Note 1. When R40 is 6800Ω, R41 is not used.
Note 2. When R53 is 6800Ω, R54 is not used.

DYNAMIC MODELS A45-2SR, C136-R, C144-2SR, SH48-2SR (CH. 2500)

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		DYNAMIC PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	FM Ant. Trans.							
L2	RF Choke		19-1008 †	19-1008 †	SW-631 †	4609 †		① 5.3uh
L3	FM RF Coil							
L4	RF Choke		19-1003	19-1003	BC-564	4608		3.5uh
L5	FM Osc. Coil							
L6	1st FM IF Trans.		16-3487	16-3487	FM-254	1463		
L7	Loopstick		14-7002	14-7002	BC-418	705-A		
L8	AM Osc. Coil					70-OSC		
L9	1st AM IF Trans.		16-6758	16-6758	BC-352	12-C1	RF-1	
L10	2nd FM IF Trans.		16-3487	16-3487	FM-254	1463		
L11	2nd AM IF Trans.		16-6758	16-6758	BC-353	12-C2	RF-2	
L12	3rd FM IF Trans.		16-3487	16-3487	FM-254	1463		
L13	Discriminator		17-3494	17-3494	FM-253	1464		

① Wound on 12K Resistor.
† Parallel with 12K Resistor.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	DYNAMIC PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V Ⓐ .85A	560 VCT Ⓐ .095A	6.3V Ⓐ 5.4A							

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	DYNAMIC PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5700Ω	6-8Ω	OT145	24S07①	A-2902①	AU-604①	A-3849①	24S07①	S-53X①	① Use Original Frame
T3	5700Ω	6-8Ω	OT145	24S07①	A-2902①	AU-604①	A-3849①	24S07①	S-53X①	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	DYNAMIC PART No.	QUAM PART No.	
SP1	12"	PM	6-8Ω	P/N-12-JWZ	12A1Z7.9	
SP2	5"x 7"	PM	6-8Ω		57A21Z7.6	
SP3	3½"	PM	6-8Ω		3A15T	
SP4	12"	PM	6-8Ω	P/N-12-JWZ	12A1Z7.9	
SP5	5"x 7"	PM	6-8Ω		57A21Z7.6	
SP6	3½"	PM	6-8Ω		3A15T	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA								
	DYNAMIC PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		JENSEN PART No.		SONOTONE PART No.	
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE
M1		13TB	Not Req.	26S	S1-1 S3-1			8TA4-S	N-8TA-S

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	DYNAMIC PART No.	CLEVITE WALCO PART No.	JENSEN PART No.	
M2		W-103STSS † or W-103STDS †♦	S-69X † or S-69XSD †♦ or S-69XDD ♦	† Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	DYNAMIC PART No.	NOTES
M3	Tuning Cap.		FM-AM, 4 Gang (AM Sections: Ant. 16—220mmf, Osc. 13-82mmf
M4	Switch		Function
M5	Switch		Speaker, Internal-External

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT® Folder

DYNAMIC MODELS A45-50, CT36-5, CT44-50, S32-500GS, SH48-50 (CH. 500)

DYNAMIC MODELS A45-50, CT36-5, CT44-50, S32-500GS, SH48-50 (CH. 500)

MODEL CT44-50

DYNAMIC MODELS A45-50, CT36-5, CT44-50, S32-500GS, SH48-50 (CH. 500)

TRADE NAME	Dynamic Models A45-50, CT36-5, CT44-50, S32-500GS, SH48-50 (Ch. 500)
MANUFACTURER	Dynamic Electronics - New York, Inc., 87-46 123rd St., Richmond Hill 18, L.I., N.Y.
TYPE SET	AC Operated 9 Tube Stereo Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110-120 Volts AC, 60 Cycles RATING 110 Watts, 1 Amp @ 117 Volts AC

FOR SERVICE INFORMATION ON RECORD CHANGER - SEE SIMILAR GLASER STEERS GS-77 (REVISED) PHOTOFACT SET 482 FOLDER 11

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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JT761

PARTS LIST AND DESCRIPTIONS

TUBES

• CBS •	GENERAL ELECTRIC •	RAYTHEON •	SYLVANIA •

ITEM No.	USE	TYPE
V1	Channel 1 AF Amp - Channel 2 AF Amp	12AU7A
V2	Channel 1 AF Amp - Phase Inverter	12AX7
V3	Channel 1 Output	EL84/6BQ5
V4	Channel 1 Output	EL84/6BQ5
V5	Channel 2 AF Amp - Phase Inverter	12AX7
V6	Channel 2 Output	EL84/6BQ5
V7	Channel 2 Output	EL84/6BQ5
V8	Rectifier	EZ81/6CA4
V9	Rectifier	EZ81/6CA4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA DYNAMIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	40	400		PR4-200	BBRQ0174	WQ795	CDB-Q-4422	TVA-4750	
B	20	400							
C	40	400							
C2	50	450		PRS1710	BR445	TC70	TD-4-450	TVA-1702	
C3	4	25NP		PRS7405	BBR8-150 †	TCN504		TVAS-1302.5*	
C4	20	25NP		PRS7350	BR505 †	TCN3520		TVANS-1204.6*	
C5	4	25NP		PRS7405	BBR8-150 †	TCN504		TVAS-1302.5*	
C6	20	25NP		PRS7350	BR505 †	TCN3520		TVANS-1204.6*	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
† Use 2 units. Connect negative terminals together.
Connect positive terminals into circuit the same as the original non-polarized unit.

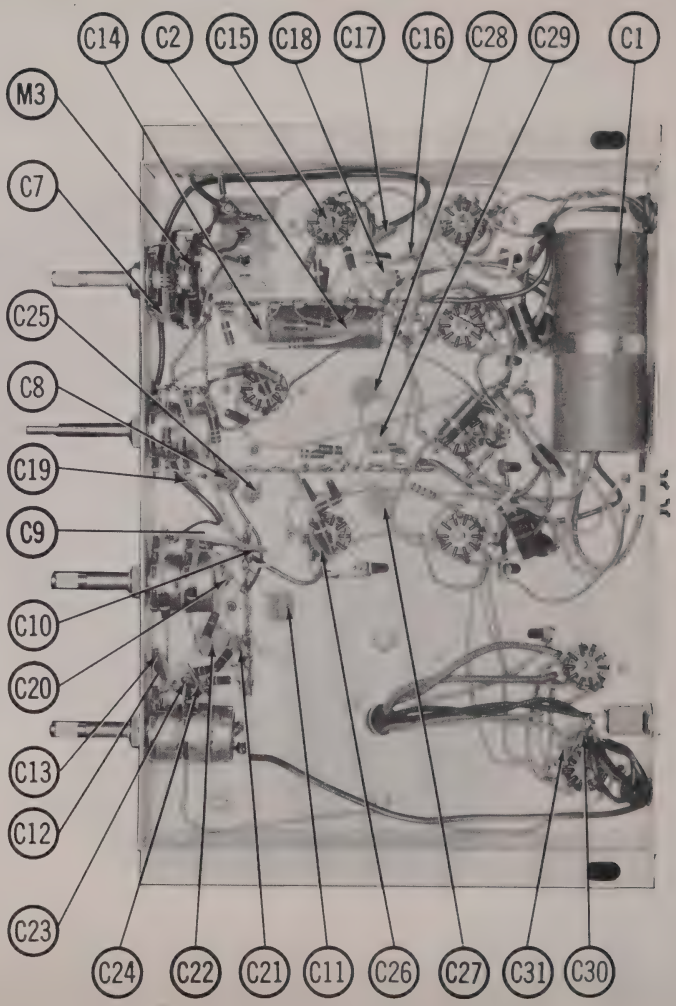
FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C7	680		BPD-00068	DD-681	BYA10T68	CCD-681	GP368	10TS-T68
C8	5000		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C9	100 N150					*		10TCP-T10
C10	2000		BPD-002	DD-202	BYA10D2	CCD-202	GP220	5HK-D20
C11	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C12	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C13	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C14	2000		BPD-002	DD-202	BYA10D2	CCD-202	GP210	5HK-D20
C15	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C16	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C17	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C18	56 N750			TCN-56	C10Q56U	CCTN-560	CN7-456	10TCU-Q56
C19	5000		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C20	100 N150					*		10TCP-T10
C21	2000		BPD-002	DD-202	BYA10D2	CCD-202	GP220	5HK-D20
C22	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C23	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C24	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C25	2000		BPD-002	DD-102	BYA10D2	CCD-202	GP220	5HK-D20
C26	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C27	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C28	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C29	56 N750			TCN-56	C10Q56U	CCTN-560	CN7-456	10TCN-Q56
C30	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C31	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C32	.05 600V		P689Z-05		TWC6S47			118P47306S2

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	DYNAMIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	1meg	1/2	CM23380					Loudness, Channel 2
	250K tap							
B	1meg	1/2						Loudness, Channel 1
	250K tap							
R2A	1meg	1/2	CM23381	B-70	AD474meg-Z		FB16A	Treble, Channel 1
B	1meg	1/2		SR-70	Not Req.		RU16A	Treble, Channel 2
C	Shaft			Not Req.	KSS-3		CS3500	
R3A	1meg	1/2	CM23382	B-70	AD474meg-Z		FB16A	Bass, Channel 1
B	1meg	1/2		SR-70	Not Req.		RU16A	Bass, Channel 2
C	Shaft			Not Req.	KSS-3		CS3500	
D	Switch			KR-1	SWE-12		U341	Power On-Off

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R4	68K	
R5	150K	
R6	1000Ω	
R7	220K	
R8	150K	
R9	15K	
R10	68K	
R11	150K	
R12	150K	
R13	1000Ω	
R14	3300Ω	
R15	27K	
R16	1meg	
R17	150K	

ITEM No.	RATING	REMARKS
R18	3300Ω	
R19	10K	
R20	470K	
R21	150Ω 2W	
R22	470K	
R23	3.3meg	
R24	470K	
R25	68K	
R26	150K	
R27	1000Ω	
R28	220K	
R29	150K	
R30	15K	
R31	150K	

ITEM No.	RATING	REMARKS
R32	1000Ω	
R33	3300Ω	
R34	150K	
R35	27K	
R36	1meg	
R37	150K	
R38	3300Ω	
R39	470K	
R40	150Ω 2W	
R41	470K	
R42	2200Ω 1W	Note 1
R43	2200Ω 1W	Note 1

Note 1. When R42 is 1200Ω 2W, R43 is not used

TRANSFORMER (POWER)

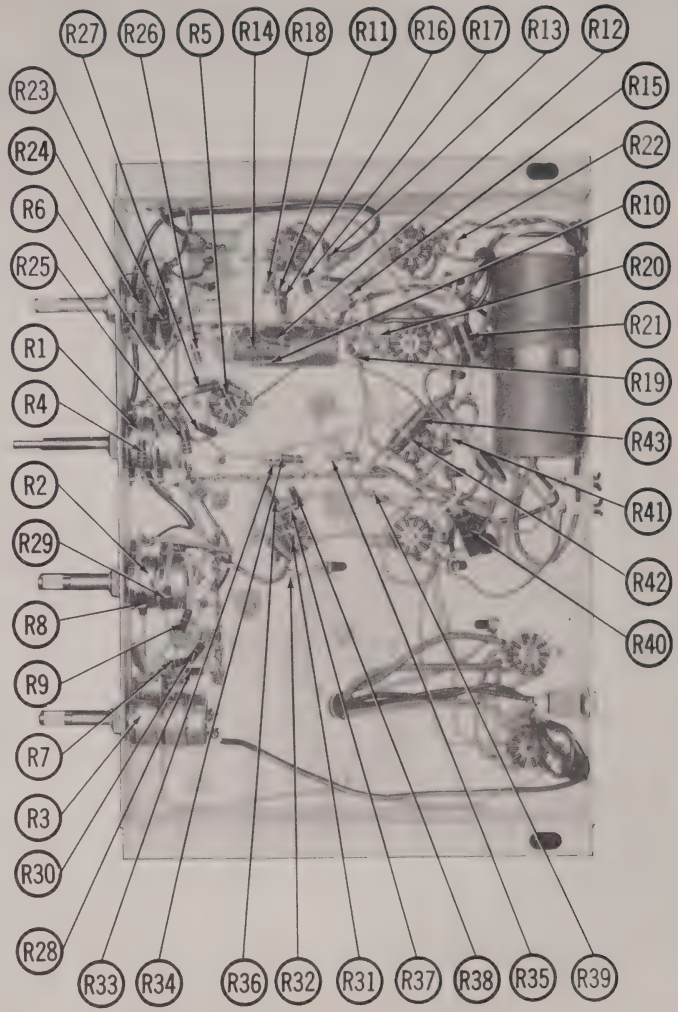
ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	DYNAMIC PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V ⓖ 1A	530VCT ⓖ .140A	6.3V ⓖ 6A	EH245	26R53 ①	P-2885①			26R53 ①	

① Drill New Mounting Holes and Tape 5V Winding

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	DYNAMIC PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5400Ω CT	6-8Ω		24S14 ①	A-2905	AU-609①	A-3852	24S14 ①	S-55X ①	① Use Original Frame
T3	5400Ω CT	6-8Ω		24S14 ①	A-2905	AU-609①	A-3852	24S14 ①	S-55X ①	

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	DYNAMIC PART No.	QUAM PART No.	
SP1	12"	PM	6-8Ω	P/N-12JWZ①	12A1Z7. 9	①All Models Except CT-36-5 ② Two used, model CT-36-5
SP2	5" x 7"	PM	6-8Ω	②	57A21Z7. 6	
SP3	3½"	PM	6-8Ω	①	3A15T	
SP4	12"	PM	6-8Ω	P/N-12JWZ①	12A1Z7. 9	
SP5	5" x 7"	PM	6-8Ω	①	57A21Z7. 6	
SP6	3½"	PM	6-8Ω	①	3A15T	
	8" x 12"	PM	6-8Ω	②		
	4" x 8"	PM	6-8Ω	②		
	3½"	PM	6-8Ω	②	3A15T	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA							
	DYNAMIC PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		JENSEN PART No.		SONOTONE PART No.	
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE
M1		13TB		26S	S1-1 S3-1			8TA4-S	N-8TA-S

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS	
	DYNAMIC PART No.	CLEVITE WALCO PART No.	JENSEN PART No.		
M2		S-69X † or S-69XD †♦ or S-69XDD ♦	W-103STSS † or W-103STDS †♦	† Jewel	♦ Diamond

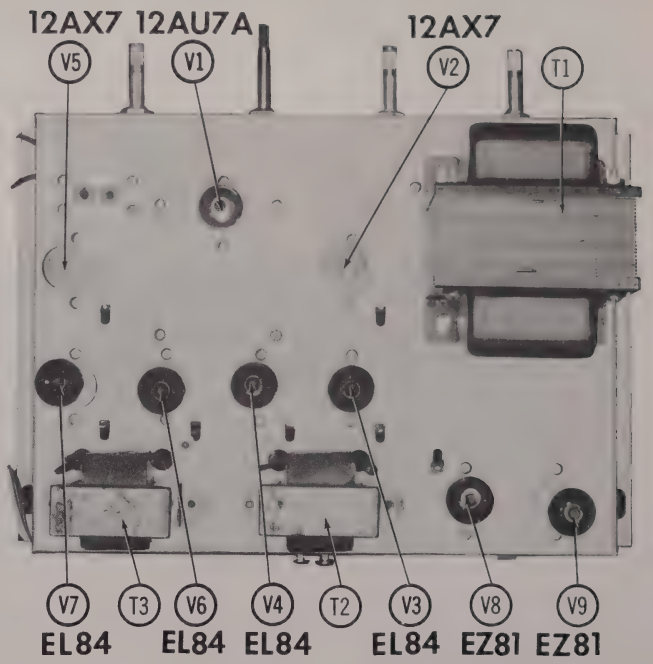
MISCELLANEOUS

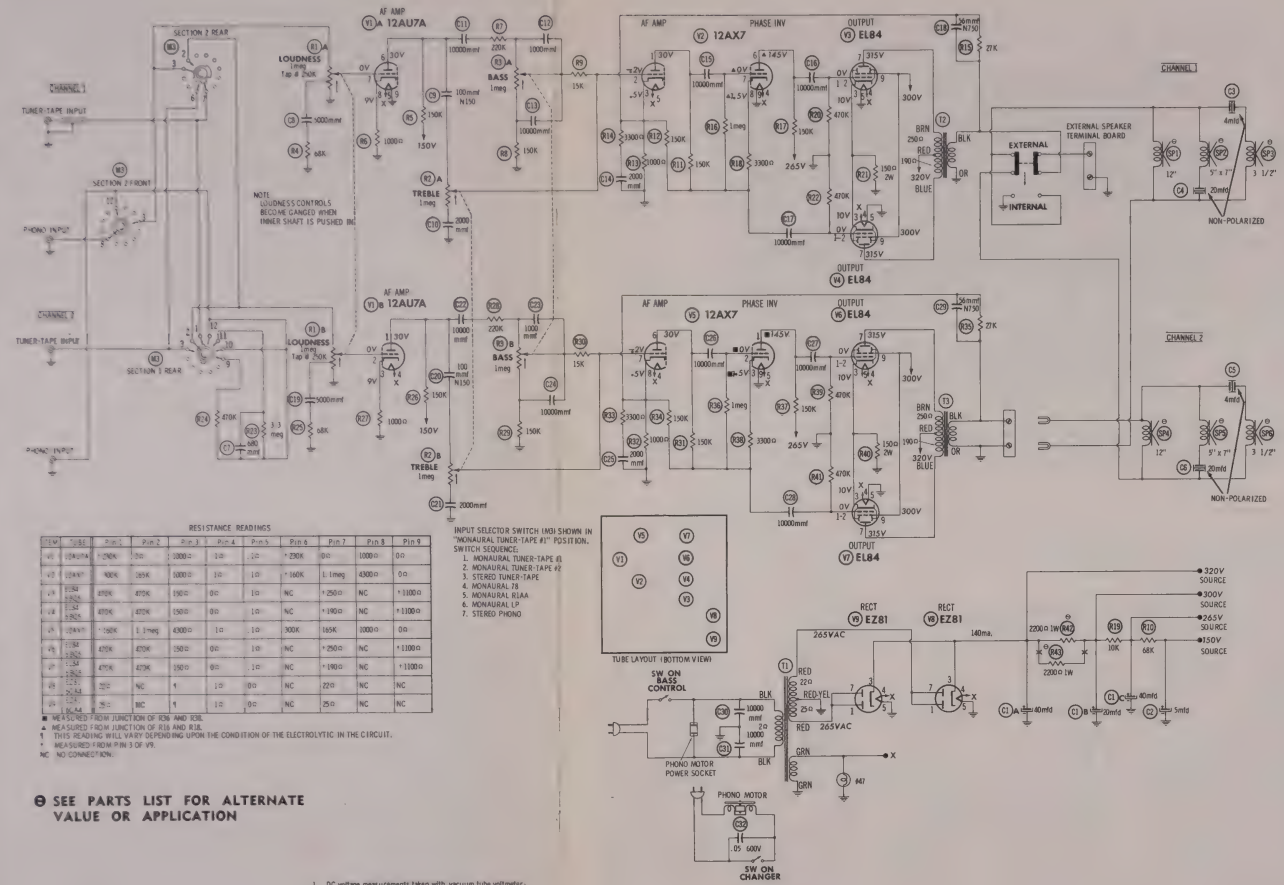
ITEM No.	PART NAME	DYNAMIC PART No.	NOTES
M3	Switch		Selector

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

CHASSIS—TOP VIEW





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AU7A	1.25M▲	70Ω	1000Ω	1Ω	1Ω	*230K	0Ω	1000Ω	0Ω
V2	12AX7	400K	265K	1000Ω	1Ω	1Ω	*160K	1.1meg	4300Ω	0Ω
V3	EL84	470K	470K	150Ω	0Ω	1Ω	NC	*250Ω	NC	*1100Ω
V4	EL84	470K	470K	150Ω	0Ω	1Ω	NC	*190Ω	NC	*1100Ω
V5	12AX7	1.25M▲	1.1meg	4300Ω	1Ω	1Ω	300K	165K	1000Ω	0Ω
V6	EL84	470K	470K	150Ω	0Ω	1Ω	NC	*250Ω	NC	*1100Ω
V7	EL84	470K	470K	150Ω	0Ω	1Ω	NC	*190Ω	NC	*1100Ω
V8	EZ81	25Ω	NC	1	1Ω	0Ω	NC	22Ω	NC	NC
V9	EZ81	25Ω	NC	1	1Ω	0Ω	NC	25Ω	NC	NC

■ MEASURED FROM JUNCTION OF R36 AND R38.
▲ MEASURED FROM JUNCTION OF R16 AND R18.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
* MEASURED FROM PIN 3 OF V9.
NC NO CONNECTION.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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DYNAMIC MODELS A45-50, CT36-5, CT44-50, S32-500GS, SH48-50 (CH. 500)

PHOTOFACT® Folder

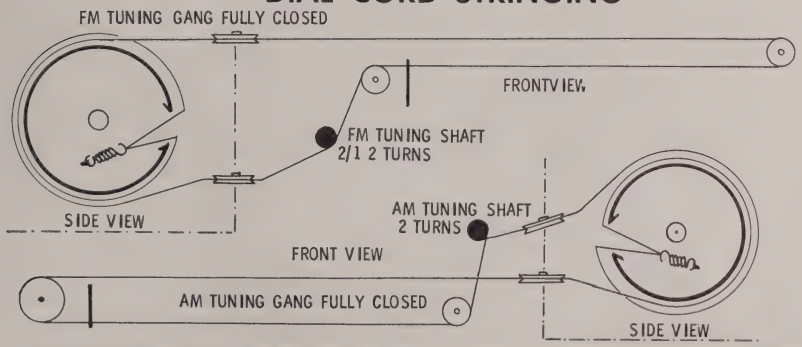
**PILOT
MODEL 580**

PILOT
MODEL 580

PILOT
MODEL 580

TRADE NAME	Pilot Model 580		
MANUFACTURER	Pilot Radio Corp., 37-06 36th Street, Long Island City 1, N. Y.		
TYPE SET	AC Operated 13 Tube FM-AM Tuner		
POWER SUPPLY	105 - 120 Volts AC, 60 Cycles	RATING	69 Watts, .66 Amp. @117 Volts AC
TUNING RANGE—BROADCAST	535 - 1720KC	FREQ. MOD.	88 — 108MC

DIAL CORD STRINGING



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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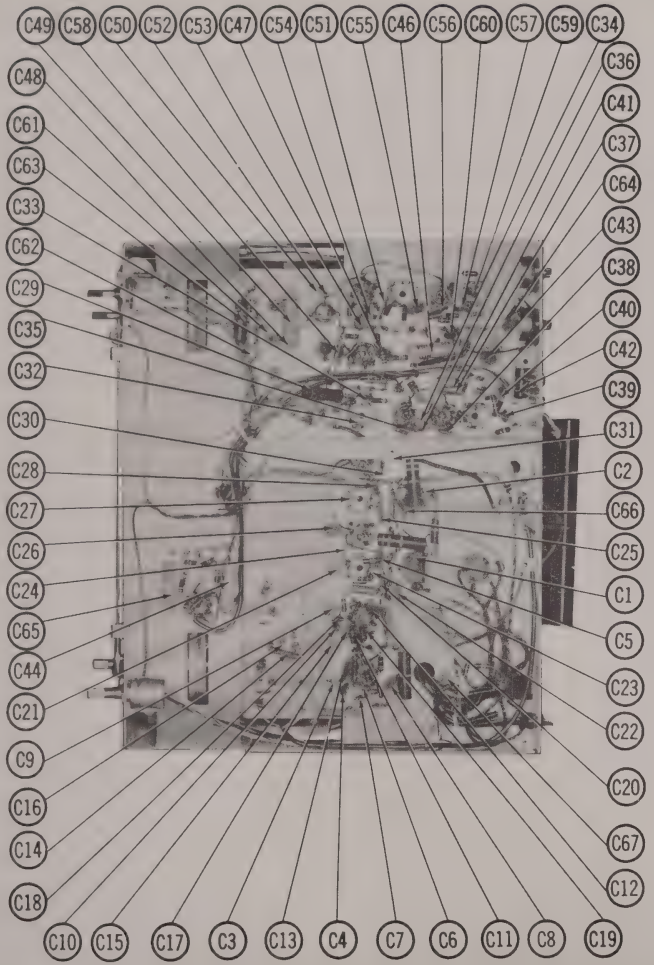
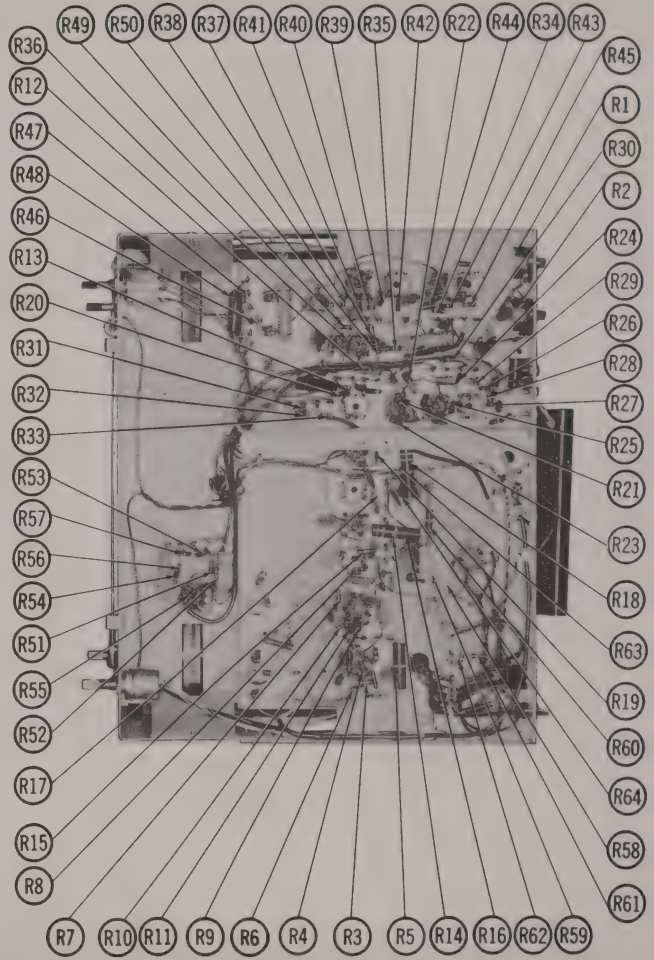
JL735

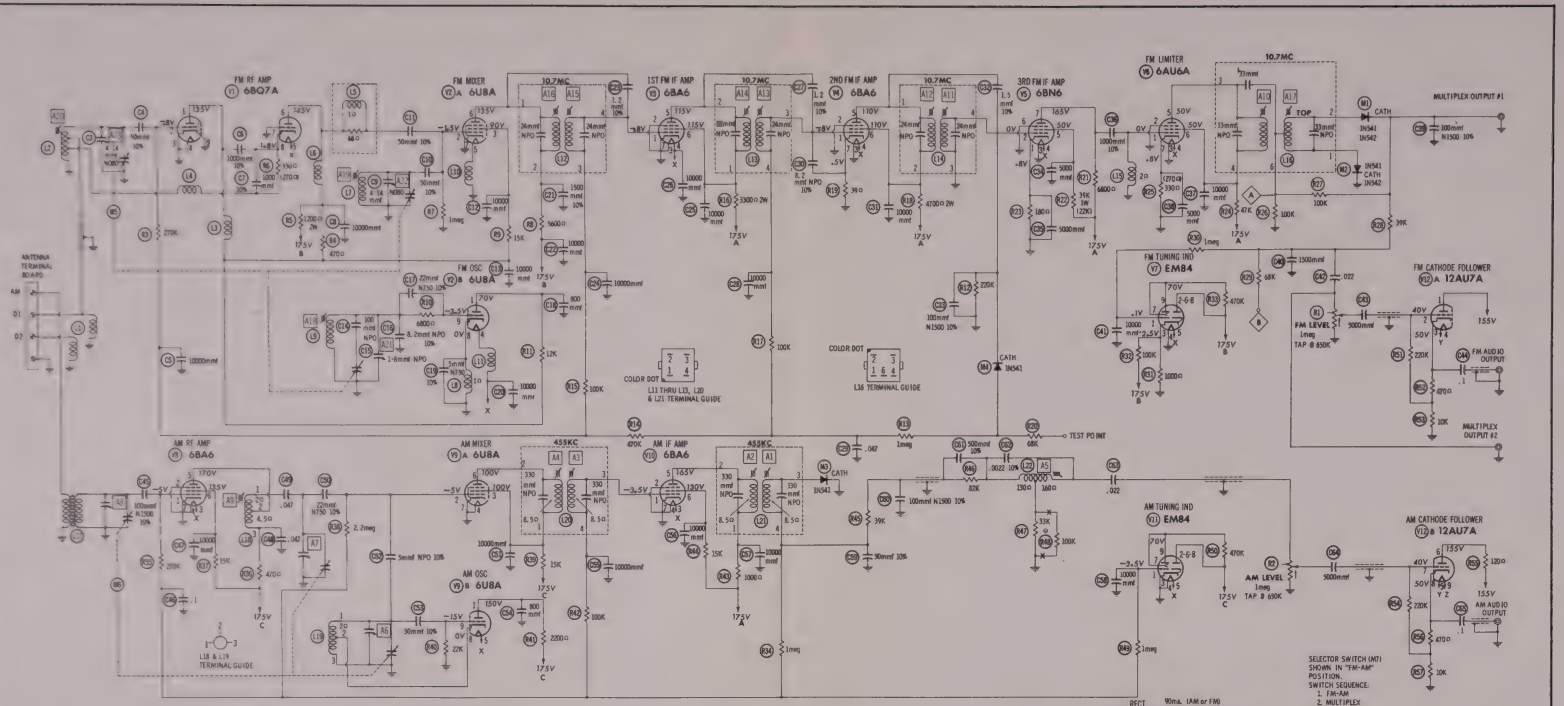
SET488 FOLDER 10



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BQ7A	†1600Ω	2meg	0Ω	0Ω	20Ω	†1600Ω	0Ω	330Ω ¶	0Ω
V2	6U8A	†14K	1meg	†17K	3Ω	20Ω	†6000Ω	0Ω	1Ω	6800Ω
V3	6BA6	1.8meg	0Ω	0Ω	20Ω	†3700Ω	0Ω	0Ω		
V4	6BA6	1.3meg	0Ω	0Ω	20Ω	†5100Ω	†5100Ω	39Ω		
V5	6BN6	180Ω	8Ω	0Ω	20Ω	†39K	0Ω	†7200Ω		
V6	6AU6A	2Ω	0Ω	0Ω	20Ω	†47K	†47K	330Ω		
V7	EM84	6FGA	1.2meg	†440Ω	1000Ω	0Ω	20Ω	†440Ω	†470K	†440Ω	†470K
V8	6BA6	†1.4meg	0Ω	20Ω	0Ω	†910Ω	15K	0Ω		
V9	6U8A	†2600Ω	3.3meg	†15K	0Ω	20Ω	†15K	0Ω	5Ω	22K
V10	6BA6	1.2meg	0Ω	20Ω	0Ω	†1400Ω	†15K	0Ω		
V11	EM84	2.1meg	†440Ω	0Ω	0Ω	20Ω	†440Ω	†470K	†440Ω	†470K
V12	12AU7A	†2600Ω	230K	10K	47K	47K	†2700Ω	250K	10K	47K
V13	EZ81 6CA4	360Ω	NC	¶	0Ω	20Ω	NC	330Ω	NC	NC

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED IN "AM" POSITION.
MEASURED FROM PIN 3 OF V13.
NC NO CONNECTION

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

● SEE PARTS LIST FOR ALTERNATE VALUES OR IDENTIFICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter.
2. AC voltages measured at 1000 ohms per volt.
3. Socket connections are shown as bottom views.
4. Measured values are from socket pin to common negative.
5. Line voltage maintained at 117 volts for voltage readings.
6. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
7. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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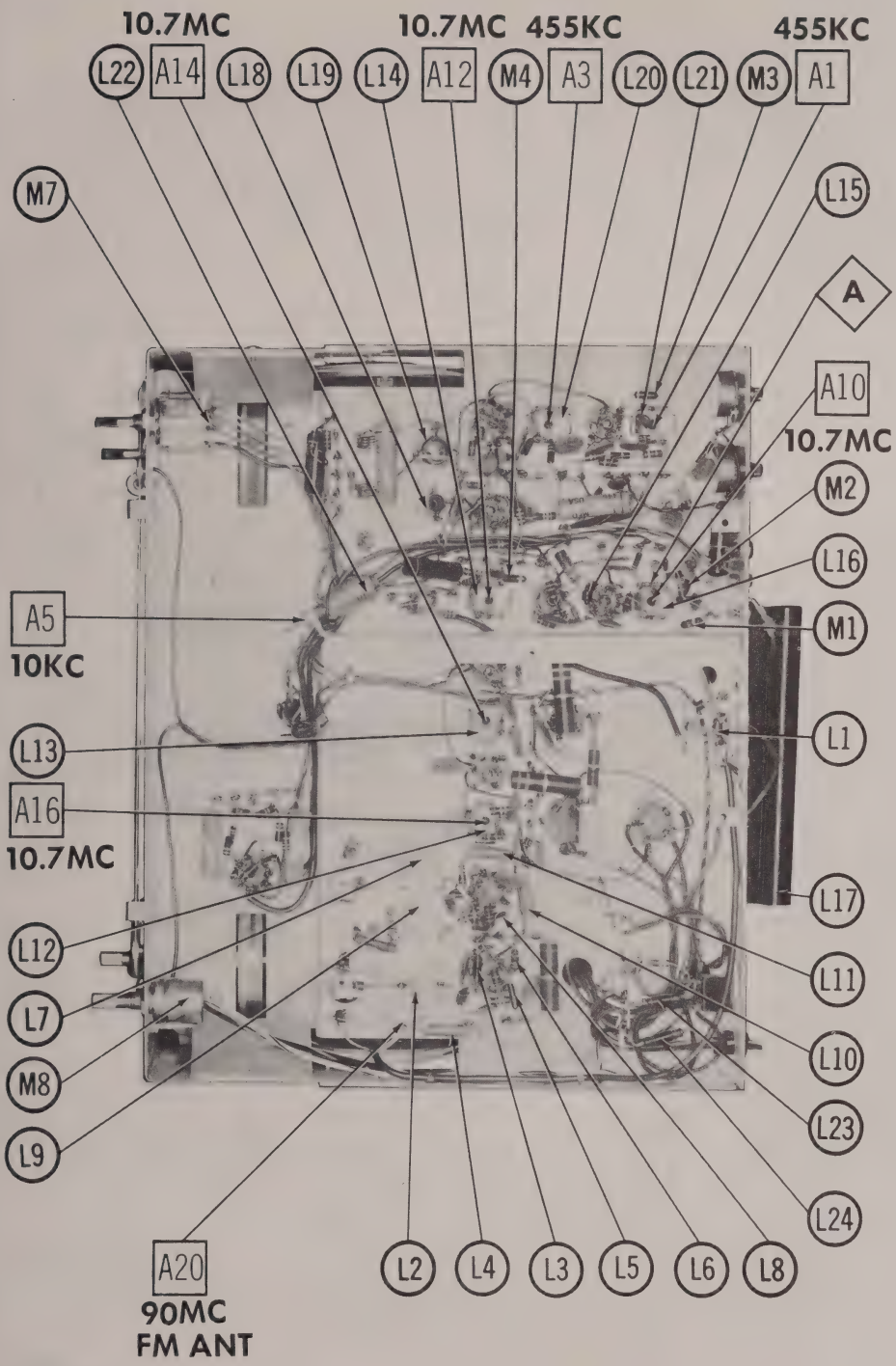
PILOT MODEL 580



CHASSIS BOTTOM VIEW - ALIGNMENT, INDUCTOR & MISC. IDENT.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication on VTVM.
Set Level Controls fully clockwise.

Suggested alignment tools:

A1 thru A4, A10 thru A17.....	GENERAL CEMENT #5097, 8727 WALSCO #2515
A5, A18, A19.....	GENERAL CEMENT #5003, 8271, 8275, 8276, 8609, 8721, 8722, 9150, 9298 WALSCO #2516, 2518, 2519
A6, A7, A8, A21, A22, A23....	GENERAL CEMENT #5004, 5008, 5009 WALSCO #2520
A9.....	GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440 WALSCO #2526, 2543, 2544, 2545

AM ALIGNMENT — SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 2 (grid) of AM Mixer. Low side to chassis.	455KC (400∿ Mod.)	(AM) Tuning gang fully open.	AC probe to AM Audio Output jack Common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.	"	455KC (10KC Mod.)	"	"	A5	Adjust for MINIMUM deflection.
3.	High side thru .01mfd to AM antenna terminal. Low side to chassis.	1600KC (400∿ Mod.)	1600KC	"	A6, A7, A8	Adjust for maximum deflection.
4.	"	600KC	600KC	"	A9	Adjust for maximum deflection while rocking tuning gang.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM — SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	High side thru 200mmf to pin 2 (grid) of FM Mixer. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe thru 1meg to point (A). Common to chassis.	A10, A11, A12, A13, A14, A15, A16	Adjust for maximum deflection.
6.	"	"	"	DC probe to point (B). Common to chassis.	A17	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE — SELECTOR IN FM POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	High side thru 200mmf to pin 2 (grid) of FM Mixer. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. amp. thru 27K to point (A). Low side to chassis.	A10, A11, A12, A13, A14, A15, A16	Adjust for maximum gain and symmetry of response similar to Fig. 1.
6.	"	"	"	Vert. amp. to point (B). Low side to chassis.	A17	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A10 for maximum amplitude and straightness of cross-over lines.

FM RF ALIGNMENT — SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	High side thru 270Ω to FM antenna terminal (D1). Low side to chassis.	90MC (Unmod.)	(FM) 90MC	DC probe thru 1meg to point (A). Common to chassis.	A18, A19 A20	Adjust for maximum deflection.
8.	"	106MC	106MC	"	A21, A22, A23	Adjust for maximum deflection. Repeat Step 7.

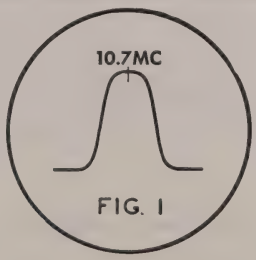


FIG. 1

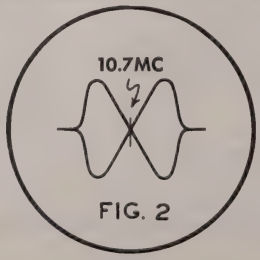


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	CBS • GENERAL ELECTRIC • RAYTHEON • SYLVANIA • USE	TYPE	ITEM No.	USE	TYPE
V1	FM RF Amplifier	6BQ7A	V8	AM RF Amplifier	6BA6
V2	FM Mixer - Osc.	6U8A	V9	AM Mixer - Osc.	6U8A
V3	1st FM IF Amp.	6BA6	V10	AM IF Amplifier	6BA6
V4	2nd FM IF Amp.	6BA6	V11	AM Tuning Indicator	EM84
V5	3rd FM IF Amp.	6BN6	V12	FM-AM Cathode Follower	12AU7A
V6	FM Limiter	6AU6A	V13	Rectifier	EZ81/6CA4
V7	FM Tuning Indicator	EM84/6FG6			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	PILOT PART No.	REPLACEMENT DATA AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	40	300	24-123	AFH3-25-50	CO194	FP375. 5	TMT-29	TVL-3583	
B	40	150							
C	40	150							
C2	40	250	24-176	AFH-29	AO290	FP146	TMS-31	TVL-1519	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	4-14 N080		DI-50	DD-500	L10Q50	CCD-500	GP450	10TS-Q50
C4	50 10%		BPD-01	BYA103	BYA103	CCD-103	GP110	5HK-S10
C5	10000		BPD-01	DD-103	BYA103	CCD-103	GP110	5HK-S10
C6	1000 10%		DI-1000	DD-102	PM6D1	CCD-102	GP210	10TS-D10
C7	1000 10%		DI-1000	DD-102	PM6D1	CCD-102	GP210	10TS-D10
C8	10000		BPD-01	DD-103	BYA103	CCD-103	GP110	5HK-S10
C9	4-14 N080							
C10	50 10%		DI-50	DD-500	L10Q50	CCD-500	GP450	10TS-Q50
C11	50 10%		DI-50	DD-500	L10Q50	CCD-500	GP450	10TS-Q50
C12	10000		BPD-01	DD-103	BYA103	CCD-103	GP110	5HK-S10
C13	10000		BPD-01	DD-103	BYA103	CCD-103	GP110	5HK-S10
C14	100 NPO		NPO-SI 100	TCZ-100	C10T1C	CCTO-101		10TCC-T10
C15	1-8 NPO							10TCC-V82
C16	8. 2 NPO 10%		NPO-DI 8. 2		C10V82C			
C17	22 N750 10%		N750-DI 22	DTN-22	C10Q22U	CCTN-220	CN7-422	10TCU-Q22
C18	800		BPD-0008	DD-801	L10T80	CCTN-801	GP382	10TS-T80
C19	5 N750 10%			DTN-5	C10V5U	CCTN-050	CNO-550	10TCU-V50
C20	10000		BPD-01	DD-103	BYA103	CCD-103	GP110	5HK-S10
C21	1500 10%		DI-1500	DD-152	BYA152	CCD-152	GP215	10TS-D15
C22	10000		BPD-01	DD-103	BYA103	CCD-103	GP110	5HK-S10
C23	1. 2 10%							10TCC-V12
C24	10000		BPD-01	DD-103	BYA103	CCD-103	GP110	5HK-S10
C25	10000		BPD-01	DD-103	BYA103	CCD-103	GP110	5HK-S10
C26	10000 10%		BPD-01	DD-103	BYA103	CCD-103	GP110	10TCC-V12
C27	1000		BPD-01	DD-103	BYA103	CCD-103	GP110	5HK-S10
C28	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C29	8. 2 NPO 10%		NPO-DI 8. 2		C10V82C			10TCC-V82
C30	10000		BPD-01	DD-103	BYA103	CCD-103	GP110	5HK-S10
C31	1. 5 10%		NPO-DI 1. 5	TCZ-1R5				10TCC-V15
C32	100 N1500 10%			TCL-100		*	GP250	5HK-D50
C33	5000		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C34	5000		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C35	5000		BPD-005	DD-502	BYA10D5	CCD-502	GP250	10TS-D10
C36	1000 10%		DI-1000	DD-102	PM6D1	CCD-102	GP210	10TS-D10
C37	10000		BPD-01	DD-103	BYA103	CCD-103	GP110	5HK-S10
C38	5000		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C39	100 N1500 10%			TCL-100		*		
C40	1500		BPD-0015	DD-152	BYA10D15	CCD-152	GP215	5HK-D15
C41	10000		BPD-01	DD-103	BYA103	CCD-103	GP110	5HK-S10
C42	.022 400V		P348N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C43	5000		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C44	.1 200V		P288N-1	DF-104	CUB32P1	2DP-3-104	GEM-3Q1	2TM-P1
C45	100 N1500 10%			TCL-100		*		

CHASSIS—TOP VIEW

PARTS LIST AND DESCRIPTIONS (Continued)

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C46	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P1
C47	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C48	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C49	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C50	22 N750 10%		N750-DI 22	DTN-22	C10Q22U	CCTN-220	CN7-422	10TCU-Q22
C51	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C52	5 NPO 10%		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C53	50 10%		DI-50	DD-500	LI0Q5	CCD-500	GP450	10TS-Q50
C54	800		BPD-0008	DD-801	LI0T8	CCD-801	GP382	10TS-T80
C55	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C56	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C57	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C58	10000		DI-50	DD-500	LI0D5	CCD-500	GP450	10TS-Q50
C59	50 10%			TCL-100		*		
C60	100 N1500 10%		DI-500	DD-501	5R5T5	CCD-501	GP350	10TS-T50
C61	500 10%		V84C4D22-10%		PM6D22	6DP-1-222	GP222	6TM-D22
C62	.0022 200V 10%		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C63	.022 400V		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C64	5000		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P1
C65	.1 200V		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C66	10000		HVD-30-33	DD30-330	HVA20Q33	3CCD-330	2DY-433	30GA-Q30
C67	30 2000V							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PILOT PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½	39-41	ABT-74	A47F5-1meg	Q19-137X	RU16T654	Level, FM
B	650K Tap			AK-1	FKS-1/4	Not Req.	SL-38, SL3500	
R2A	Shaft		39-41	ABT-74	A47F5-1meg	Q19-137X	RU16T654	Level, AM
B	1meg 650K Tap			AK-1	FKS-1/4	Not Req.	SL-38, SL3500	
	Shaft							

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R3	270K	
R4	470Ω	
R5	1200Ω 2W	(270Ω) *
R6	330Ω	
R7	1meg	
R8	5600Ω	
R9	15K	
R10	6800Ω	
R11	12K	
R12	220K	
R13	1meg	
R14	470K	
R15	100K	
R16	3300Ω 2W	
R17	100K	
R18	4700Ω 2W	
R19	39Ω	
R20	68K	
R21	6800Ω	
R22	39K 1W	(22K) *
R23	180Ω	

ITEM No.	RATING	REMARKS
R24	47K	
R25	330Ω	(270Ω)*
R26	100K	
R27	100K	
R28	39K	
R29	68K	
R30	1meg	
R31	1000Ω	
R32	100K	
R33	470K	
R34	1meg	
R35	270K	
R36	470Ω	
R37	15K	
R38	2.2meg	
R39	15K	
R40	22K	
R41	2200Ω	
R42	100K	
R43	1000Ω	
R44	15K	

ITEM No.	RATING	REMARKS
R45	39K	
R46	82K	
R47	33K	
R48	100K	Note 1
R49	1meg	
R50	470K	
R51	220K	
R52	470Ω	
R53	10K	
R54	220K	
R55	120Ω	
R56	470Ω	
R57	10K	
R58	220Ω 7W	#31-174
R59	220Ω 7W	#31-174
R60	2200Ω 1W	
R61	100K	(270Ω)*
R62	330Ω	
R63	220K	
R64	47K	

\# Pilot Part Number.
* Alternate Value.
Note 1. Not used in some versions.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: PILOT PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	FM Ant. Trans.	75-53						
L2	FM Ant. Coil	70-87				4582		.15uh
L3	RF Choke	75-52	19-2002	19-2002		4604		1.6uh
L4	Cathode Choke	75-19	19-1001	19-1001	BC-562	4604		5uh
L5	RF Choke	75-33	19-1004	19-1004	SW-631	4609		①
L6	RF Choke							5uh
L7	FM RF Coil	71-48	19-1004	19-1004	SW-631	4529		
L8	Cathode Choke	75-33						1.6uh
L9	FM Osc. Coil	72-83	19-1001	19-1001	BC-562	4604		1.6uh
L10	Fil. Choke	75-19	19-1001	19-1001	BC-562	4604		
L11	Fil. Choke	75-19	16-3487	16-3487	FM-254	1463		
L12	1st FM IF Trans.	273-151	16-3487	16-3487	FM-254	1463		
L13	2nd FM IF Trans.	273-151	16-3487	16-3487	FM-254	1463		
L14	3rd FM IF Trans.	273-151	19-3075	19-3075	TV-186	6172	VP-2	80uh
L15	RF Choke	75-51	17-3494	17-3494	FM-253	1464		
L16	Discriminator	279-78			BC-419			
L17	Loopstick	270-57						
L18	AM RF Coil	71-43			BC-394	70-OSC		
L19	AM Osc. Coil	72-78	16-6758	16-6758	BC-352	12-C1	RF-1	
L20	1st AM IF Trans.	273-129	16-6758	16-6758	BC-353	12-C2	RF-2	
L21	2nd AM IF Trans.	273-129						1.6uh
L22	10KC Filter	79-106	19-1001	19-1001	BC-562	4604		1.6uh
L23	Line Choke	75-19	19-1001	19-1001	BC-562	4604		
L24	Line Choke	75-19						

① 4 Turns of #24 Wire on 68Ω Resistor.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	SEC. 1	SEC. 2	REPLACEMENT DATA: PILOT PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V@ .66A	400 VCT @.100A	6.3V @ 4.7A	55-72						
	SEC. 3	SEC. 4	SEC. 5							
	6.3V@ .3A									

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA: PILOT PART No.	CBS PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
M1	1N541 *		1N636	1N295	1N295	Discriminator (Pigtail) } Matched Pair
M2	1N541 *		1N636	1N295	1N295	Discriminator (Pigtail) }
M3	1N541	1N541	1N636	1N295	1N295	AM Detector (Pigtail)
M4	1N541	1N541	1N636	1N295	1N295	FM AGC Diode

* Type #1N542 may be used in some versions.

MISCELLANEOUS

ITEM No.	PART NAME	PILOT PART No.	NOTES
M5	Tuning Cap	26-66	FM (3 Gang)
M6	Tuning Cap	26-67	AM, 3 Gang (Ant. 24—489mmf, RF 30—506mmf, Osc. 21—165mmf)
M7	Switch	100-145	Selector
M8	Switch	100-139	Power Off-On

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder

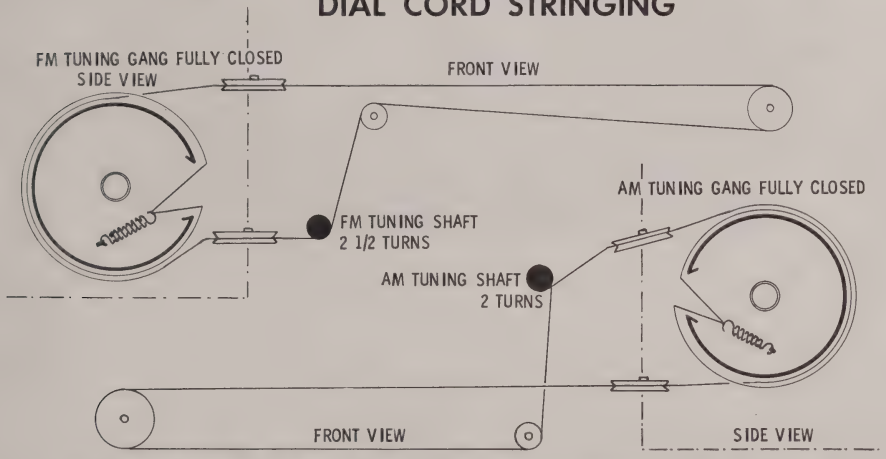
**PILOT
MODEL 590**

PILOT
MODEL 590

PILOT
MODEL 590

TRADE NAME	Pilot Model 590		
MANUFACTURER	Pilot Radio Corp., 37-06 36th Street, Long Island City 1, N. Y.		
TYPE SET	AC Operated 16 Tube FM-AM Receiver With Stereo Amplifier		
POWER SUPPLY	105 - 120 Volts AC, 60 Cycles	RATING	81 Watts, .75 Amp. @117 Volts AC (FM)
TUNING RANGE—BROADCAST	535 — 1720KC	FREQ. MOD.	88 — 108MC

DIAL CORD STRINGING



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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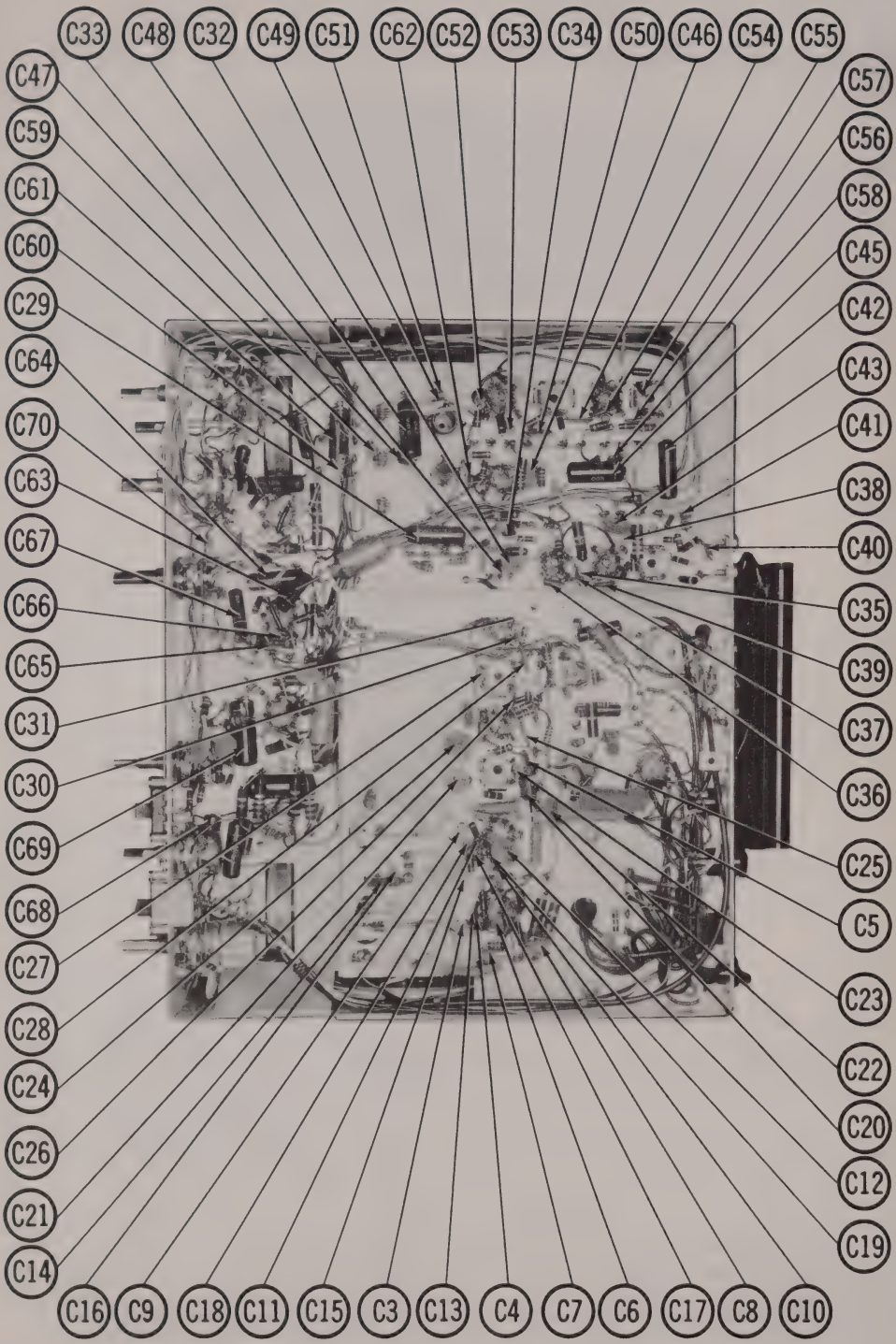
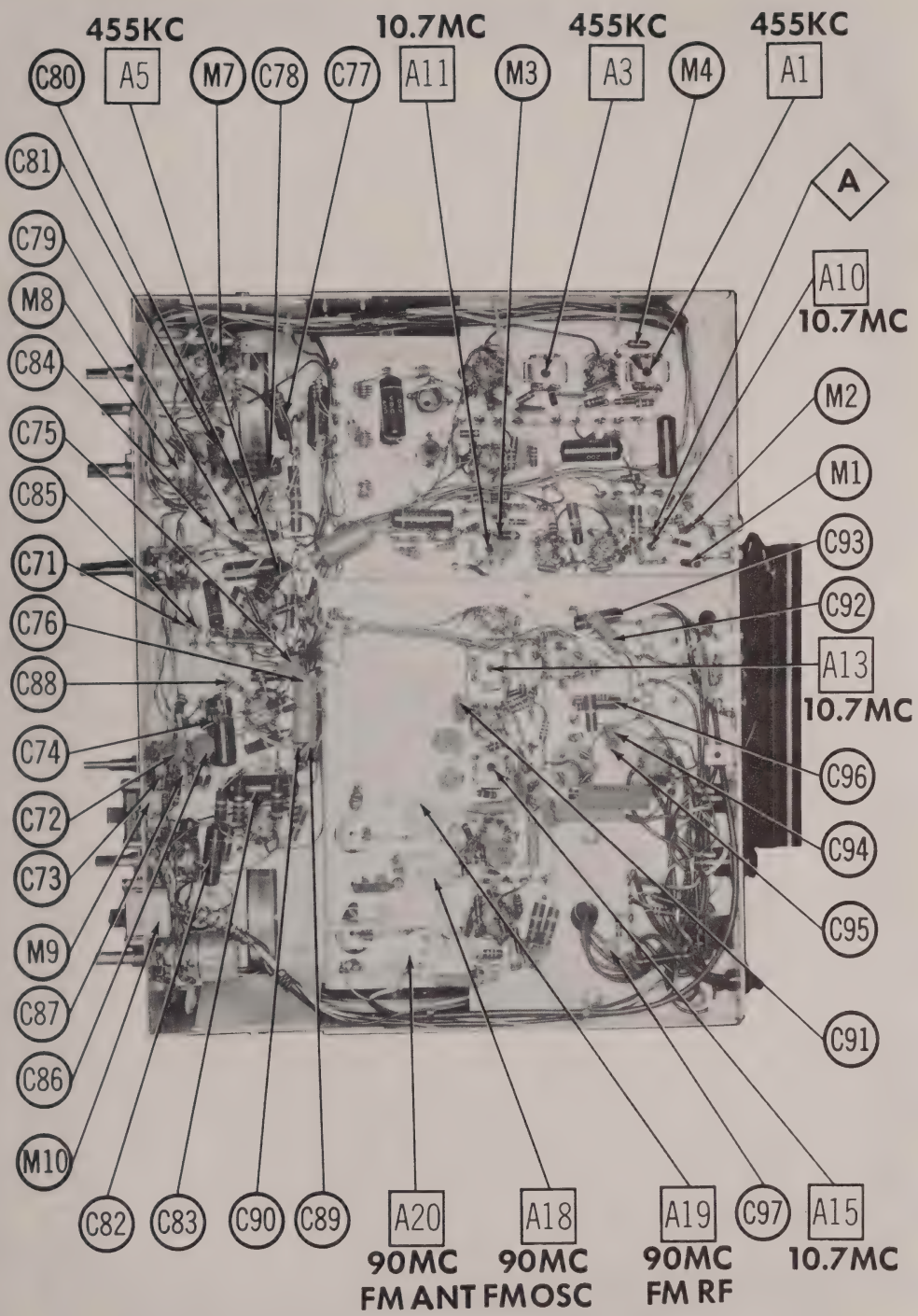
JL751

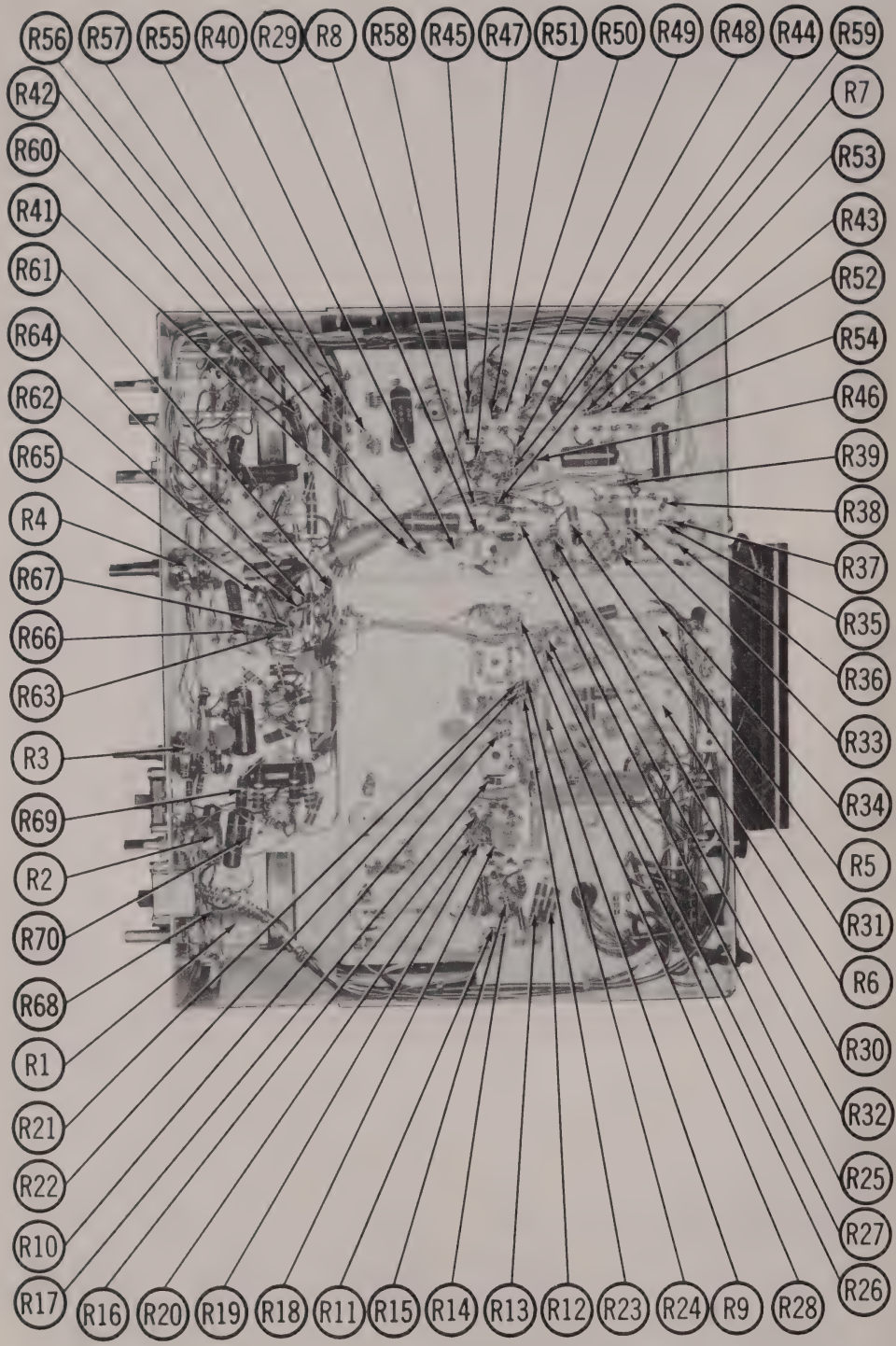
SET488 FOLDER 11



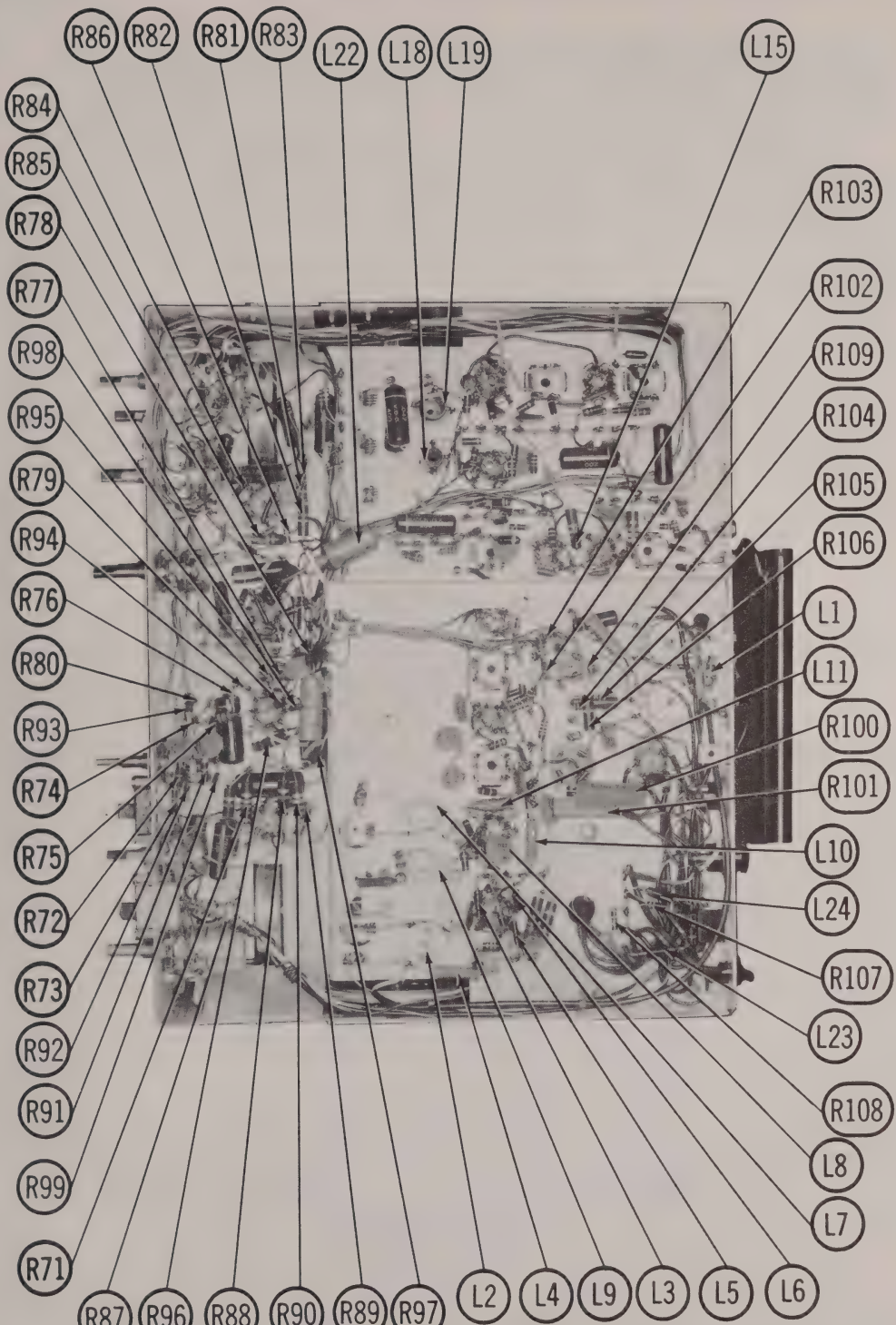
CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



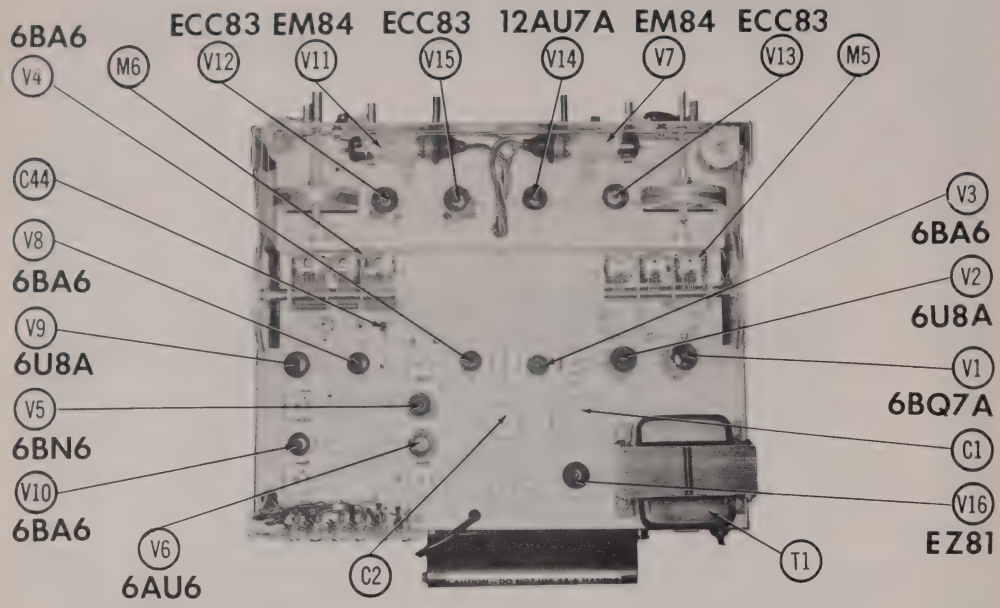
CHASSIS BOTTOM VIEW - ALIGNMENT, CAPACITOR & MISC. IDENT.



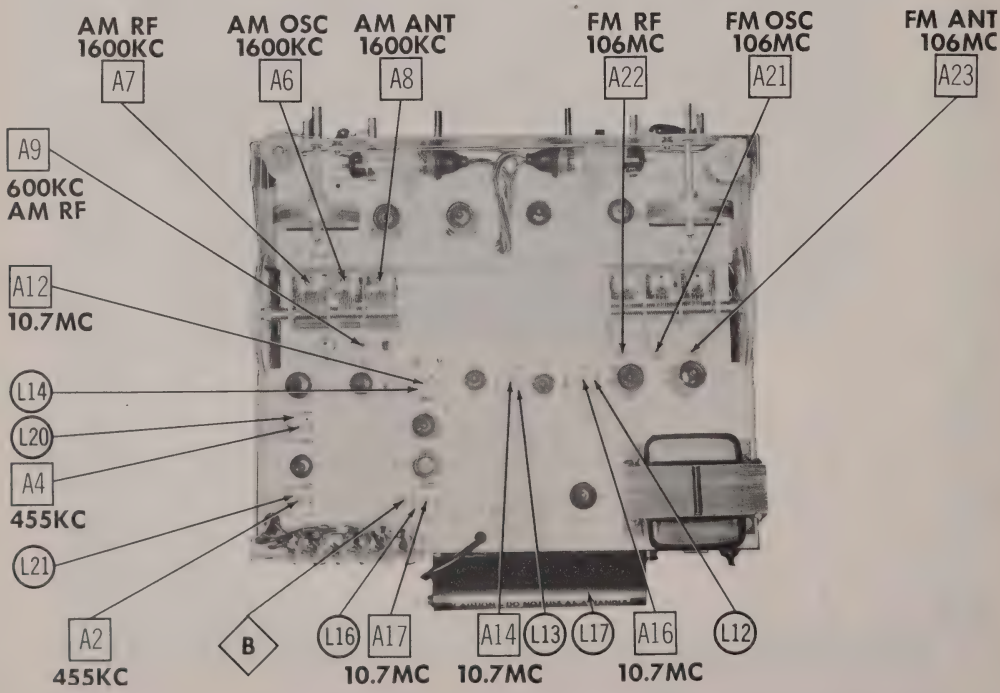
CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



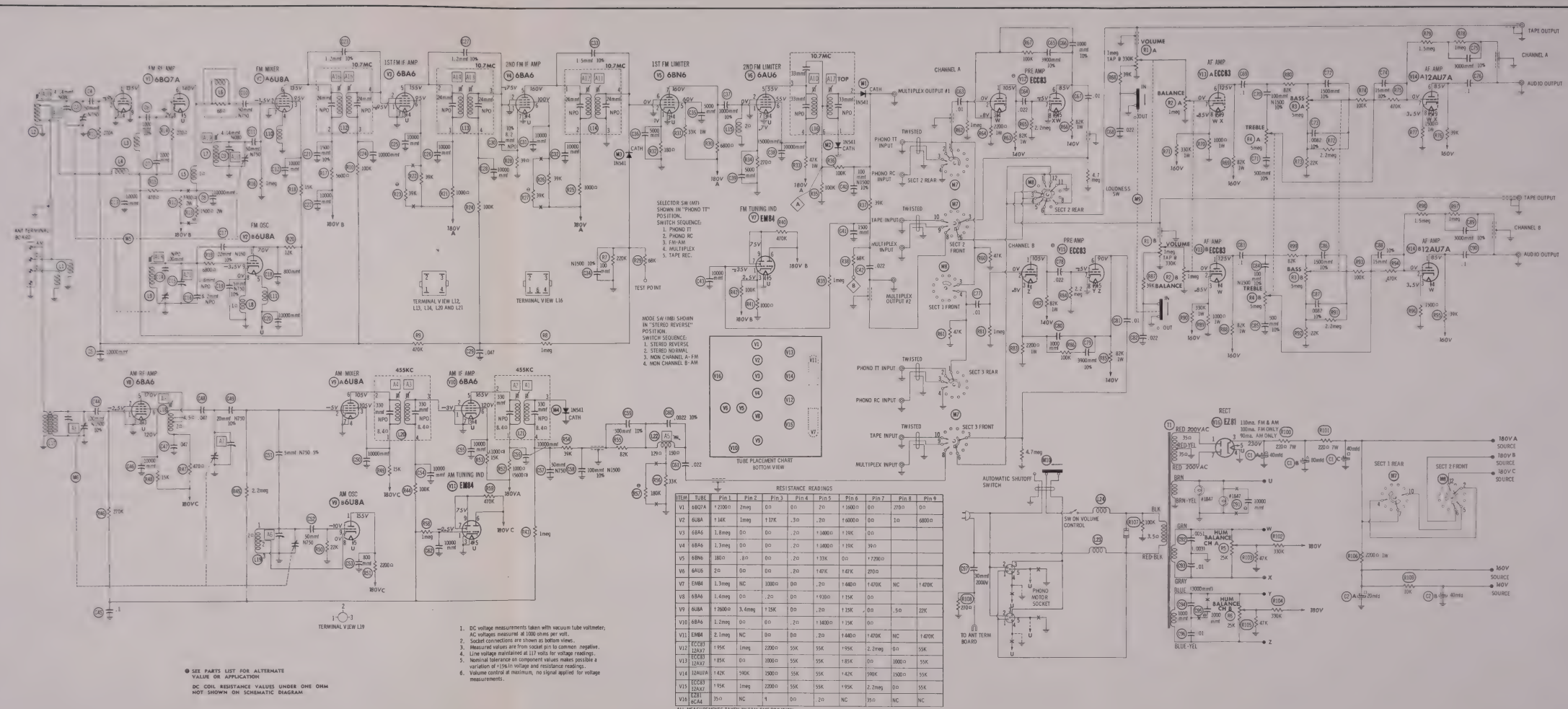
CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



CHASSIS TOP VIEW



CHASSIS-TOP VIEW



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BQ7A	†2100Ω	2meg	0Ω	0Ω	2Ω	†1600Ω	0Ω	270Ω	0Ω
V2	6U8A	†14K	1meg	†17K	3Ω	2Ω	†6000Ω	0Ω	1Ω	6800Ω
V3	6BA6	1.8meg	0Ω	0Ω	2Ω	†1400Ω	†19K	0Ω		
V4	6BA6	1.3meg	0Ω	0Ω	2Ω	†1400Ω	†19K	39Ω		
V5	6BN6	180Ω	.8Ω	0Ω	2Ω	†33K	0Ω	†7200Ω		
V6	6AU6	2Ω	0Ω	0Ω	2Ω	†47K	†47K	270Ω		
V7	EM84	1.3meg	NC	1000Ω	0Ω	2Ω	†440Ω	†470K	NC	†470K
V8	6BA6	1.4meg	0Ω	2Ω	0Ω	†910Ω	†15K	0Ω		
V9	6U8A	†2600Ω	3.4meg	†15K	0Ω	2Ω	†15K	0Ω	5Ω	22K
V10	6BA6	1.2meg	0Ω	0Ω	2Ω	†1400Ω	†15K	0Ω		
V11	EM84	2.1meg	NC	0Ω	0Ω	2Ω	†440Ω	†470K	NC	†470K
V12	ECC83 12AX7	†95K	1meg	220Ω	55K	55K	†95K	2.2meg	0Ω	55K
V13	ECC83 12AX7	†85K	0Ω	100Ω	55K	55K	†85K	0Ω	100Ω	55K
V14	12AU7A	†42K	590K	150Ω	55K	55K	†42K	590K	150Ω	55K
V15	ECC83 12AX7	†95K	1meg	220Ω	55K	55K	†95K	2.2meg	0Ω	55K
V16	EZ81 6CA4	350	NC	1	0Ω	2Ω	NC	350	NC	NC

ALL MEASUREMENTS TAKEN IN "AM-FM" POSITION.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 3 OF V16. NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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PILOT
MODEL 590

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools:

A1 thru A4, A10 thru A17...	GENERAL CEMENT #5097, 8727 WALSCO #2515
A5, A18, A19.....	GENERAL CEMENT #5003, 8271, 8275, 8276, 8609, 8721, 8722, 9150, 9298 WALSCO #2516, 2518, 2519
A6, A7, A8, A21, A22, A23...	GENERAL CEMENT #5004, 5008, 5009 WALSCO #2520
A9.....	GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440 WALSCO #2526, 2543, 2544, 2545

AM ALIGNMENT - SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .1mfd to pin 2 (grid) of AM Mixer. Low side to chassis.	455KC (400∿ Mod.)	(AM) Tuning gang fully open.	AC probe to Channel B Audio Output jack. Low side to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.	"	455KC (10KC Mod.)	"	"	A5	Adjust for MINIMUM deflection.
3.	High side thru .01mfd to AM antenna terminal. Low side to chassis.	1600KC (400∿ Mod.)	1600KC	"	A6, A7, A8	Adjust for maximum deflection.
4.	"	600KC	600KC	"	A9	Adjust for maximum deflection while rocking tuning gang.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	High side thru 200mmf to pin 2 (grid) of FM Mixer. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe thru 1meg to point (A). Common to chassis.	A10, A11, A12, A13, A14, A15, A16	Adjust for maximum deflection.
6.	"	"	"	DC probe to point (B). Common to chassis.	A17	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE—SELECTOR IN FM POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	High side thru 200mmf to pin 2 (grid) of FM Mixer. Low side to chassis.	10.7MC (450KC (Swp)	(FM) point of non-interference.	Vert. amp. thru 27K to point (A). Low side to chassis.	A10, A11, A12, A13, A14, A15, A16	Adjust for maximum gain and symmetry of response similar to Fig. 1.
6.	"	"	"	Vert. amp. to point (B). Low side to chassis.	A17	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A10 for maximum amplitude and straightness of cross-over lines.

FM RF ALIGNMENT—SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	High side thru 270Ω to FM antenna terminal (D1). Low side to chassis.	90MC (Unmod.)	(FM) 90MC	DC probe thru 1meg to point (A). Common to chassis.	A18, A19, A20	Adjust for maximum deflection.
8.	"	106MC	106MC	"	A21, A22, A23	Adjust for maximum deflection. Repeat Step 7.

FIG. 1

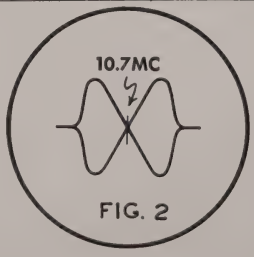


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE
V1	FM RF Amplifier	6BQ7A
V2	FM Mixer-Osc.	6U8A
V3	1st FM IF Amplifier	6BA6
V4	2nd FM IF Amplifier	6BA6
V5	1st FM Limiter	6BN6
V6	2nd FM Limiter	6AU6
V7	FM Tuning Indicator	EM84
V8	AM RF Amplifier	6BA6
V9	AM Mixer-Osc.	6U8A

* Alternate

ITEM No.	USE	TYPE
V10	AM IF Amplifier	6BA6
V11	AM Tuning Indicator	EM84
V12	Channel A Preamp.	ECC83/12AX7 (7025)*
V13	Channel A AF Amp. - Channel B AF Amp.	ECC83/12AX7
V14	Channel A AF Amp. - Channel B AF Amp.	12AU7A
V15	Channel B Preamp.	ECC83/12AX7 (7025)*
V16	Rectifier	EZ81/6CA4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA PILOT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	300	24-123	AFH3-25-50	CO194	FP326.62	TMD-38 TD-80-350	TVL-3583	
B	▲80	250							
C	■40	250							
C2A	■20	250	24-136①	AFH3-89	XC0732	FP321	TMT-81	TVL-3513	
B	▲40	250							
C	25	25	①						

① In some versions C2C is not used. C2 Part #24-116.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	4-14 N080							
C4	50 N750		N750-DI 47	TCN-50	C10Q5U	CCTN-470	CN7-447	10TCU-Q47
C5	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C6	1000 10%		DI-1000	DD-102	1R5D1	CCD-102	GP210	10TS-D10
C7	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C8	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C9	4-14 N080							
C10	50 N750		N750-DI 47	TCN-50	C10Q5U	CCTN-470	CN7-447	10TCU-Q47
C11	50 N750		N750-DI 47	TCN-50	C10Q5U	CCTN-470	CN7-447	10TCU-Q47
C12	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C13	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C14	100 NPO		NPO-SI 100	TCZ-100	C10T1C	CCTO-101	CNO-310	10TCC-T10
C15	1-8 NPO							
C16	8.2 NPO		NPO-DI 8.2		C10V82C			10TCC-V82
C17	22 N150 10%							10TCP-Q22
C18	800		BPD-0008	DD-801	L10T8	CCD-801	GP382	10TS-T80
C19	5 N750 10%			DTN-5	C10V5U	CCTN-050	CN7-550	10TCU-V50
C20	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C21	1500 10%		DI-1500	DD-152	PM6D15	CCD-152	GP215	10TS-D15
C22	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C23	1.2 10%		NPO-SI 1.0	TCZ-1			CNO-510	10TCC-V12
C24	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C25	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C26	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C27	1.2 10%		NPO-SI 1.0	TCZ-1			CNO-510	10TCC-V12
C28	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C29	.047 200V		P288N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	2PM-S47
C30	8.2 NPO 10%		NPO-DI 8.2		C10V82C			10TCC-V82
C31	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C32	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C33	1.5 10%		NPO-SI 1.5	TCZ-1R5	C10V15C		CNO-515	10TCC-V15
C34	100 N1500 10%			TCL-100		*		
C35	5000		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C36	5000		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C37	1000 10%		DI-1000	DD-102	1R5D1	CCD-102	GP210	10TS-D10
C38	10000	(5000) †	BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C39	5000		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C40	100 N1500 10%			TCL-100		*		
C41	1500		BPD-0015	DD-152	BYA10D15	CCD-152	GP215	5HK-D15
C42	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C43	10000		BPD-01	DD-103		CCD-103	GP110	5HK-S10
C44	100 N1500 10%			TCL-100		*		
C45	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P1
C46	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C47	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C48	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C49	20 N750 10%		N750-DI 20	DTN-20	C10Q2U	CCTN-220	CN7-420	10TCU-Q20
C50	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C51	5 N750 5%			DTN-5	C10V5U	CCTN-050	CN7-550	10TCU-V50
C52	50 N750		N750-DI 47	TCN-50	C10Q5U	CCTN-470	CN7-447	10TCU-Q47
C53	800		BPD-0008	DD-801	L10T8	CCD-801	GP382	10TS-T80
C54	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C55	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C56	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C57	50 N750		N750-DI 47	TCN-50	C10Q5U	CCTN-470	CN7-447	10TCU-Q47
C58	100 N1500 10%			TCL-100		*		
C59	500 10%		DI-500	DD-501	5R5T5	CCD-501	GP350	10TS-T50
C60	.0022 200V 10%		V84C4D22-10%			PM6D22	6DP-1-222	GEM-16222	6TM-D22
C61	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C62	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C63	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S1
C64	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C65	3900 10%		DI-4000		PM6D4	CCD-392	JL-239	10TS-D39
C66	1000 10%		DI-1000	DD-102	1R5D1	CCD-102	GP210	10TS-D1
C67	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S1
C68	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C69	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1
C70	100 N1500 10%			TCL-100		*		
C71	500 10%		DI-500	DD-501	5R5T5	CCD-501	GP350	10TS-T50
C72	1500 10%		DI-1500	DD-152	PM6D15	CCD-152	GP215	10TS-D15
C73	.0082 200V 10%		P684CM-0082			6DP-1-822	GEM-16282	
C74	15 10%		NPO-SI 15	TCZ-15	C10Q15C	CCTO-150	CNO-415	10TCC-Q15
C75	3000 10%		DI-3000		PM6D3	CCD-302	JL-233	10TS-D30
C76	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1
C77	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S1
C78	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C79	3900 10%		DI-4000		PM6D4	CCD-392	JL-239	10TS-D39
C80	1000 10%		DI-1000	DD-102	1R5D1	CCD-102	GP210	10TS-D10
C81	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S1
C82	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C83	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1
C84	100 N1500 10%			TCL-100		*		
C85	500 10%		DI-500	DD-501	5R5T5	CCD-501	GP350	10TS-T50
C86	1500 10%		DI-1500	DD-152	PM6D15	CCD-152	GP215	10TS-D15
C87	.0082 200V 10%		P684CM-0082			6DP-1-822	GEM-16282	
C88	15 10%		NPO-SI 15	TCZ-15	C10Q15C	CCTO-150	CNO-415	10TCC-Q15
C89	3000 10%		DI-3000		PM6D3	CCD-302	JL-233	10TS-D30
C90	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1
C91	10000	Note 1	BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C92	.0051 400V	(.003) †	P488N-005	D6-502	PM6D5	6DP-1-502	GEM-425	6TM-D5
C93	.01 400V		P488N-01	D6-103		4DP-1-103	GEM-411	4TM-S1
C94	1000	(3000) †	BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C95	1000	Note 1	BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C96	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S1
C97	30 2000V		HVD-30-33	DD30-300	HVA20Q33	3CCD-330	2DY-433	30GA-Q30

Note 1. Not used in some versions.
† Alternate Value.
* Not normally found in distributor's stock. Available thru distributor on order to manufacturer.

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	PILOT PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	1meg	½	36-73				FA16T35	Volume, Channel A
	330K Tap							
B	1meg	½					RU16T35	Volume, Channel B
	330K Tap							
C	Shaft						CS3500	
D	Switch						US41	Power Off-On
R2A	1meg	½	39-57				FA16A	Balance, Channel A
B	1meg	½					RU16R	Balance, Channel B
C	Shaft						CS3500	
R3A	5meg	½	37-41			†QJ-1342R	■ UE3854	Bass, Channel A
B	5meg	½						Bass, Channel B
R4A	5meg	½	37-41			†QJ-1342R	■ UE3854	Treble, Channel A
B	5meg	½						Treble, Channel B
R5A	25K	½	39-44	AB-26	B47-25K-S	B11-120	TA253L	Hum Balance, Channel A
B	Shaft			AK-1	Not Req.	TM4	Not Req.	
R6A	25K	½	39-44	AB-26	B47-25K-S	B11-120	TA253L	Hum Balance, Channel B
B	Shaft			AK-1	Not Req.	TM4	Not Req.	

† "Concentrikit equivalent: K-6 Kit with base elements and shafts: B13-141, P17-028 (Panel) (Not available as a factory assembled unit) B13-141, R1-108 (Rear)

■ "STA-LOC" equivalent: FA56A, RU56A, OS812, IS1312.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R7	220K	
R8	1meg	
R9	470K	
R10	100K	
R11	270K	
R12	3300Ω 2W	Note 1
R13	1500Ω 2W	Note 1
R14	270Ω	
R15	470Ω	
R16	1meg	
R17	5600Ω	
R18	15K	
R19	6800Ω	
R20	12K	
R21	1000Ω	
R22	39K	Note 2
R23	39K	Note 2
R24	100K	
R25	1000Ω	
R26	39K	Note3
R27	39K	Note3
R28	39Ω	
R29	68K	
R30	6800Ω	
R31	33K 1W	
R32	180Ω	
R33	47K 1W	
R34	270Ω	
R35	100K	
R36	100K	
R37	39K	
R38	68K	
R39	1meg	
R40	470K	
R41	1000Ω	

ITEM No.	RATING	REMARKS
R42	100K	
R43	1meg	
R44	100K	
R45	2.2meg	
R46	270K	
R47	470Ω	
R48	15K	
R49	15K	
R50	22K	
R51	2200Ω	
R52	1000Ω	(5600Ω)*
R53	15K	(1000Ω)*
R54	39K	
R55	82K	
R56	33K	
R57	180K	Note 4
R58	1meg	
R59	470K	
R60	47K	
R61	47K	
R62	1meg	
R63	82K 1W	
R64	2200Ω 1W	
R65	2.2meg	
R66	82K 1W	
R67	100K	
R68	39K	
R69	82K 1W	
R70	1000Ω 1W	
R71	330K 1W	
R72	2.2meg	
R73	22K	
R74	100K	
R75	470K	
R76	39K	

ITEM No.	RATING	REMARKS
R77	1500Ω 1W	
R78	1meg	
R79	1.5meg	
R80	82K	
R81	1meg	
R82	82K 1W	
R83	2200Ω 1W	
R84	2.2meg	
R85	82K 1W	
R86	100K	
R87	39K	
R88	82K 1W	
R89	1000Ω 1W	
R90	330K 1W	
R91	2.2meg	
R92	22K	
R93	100K	
R94	470K	
R95	39K	
R96	1500Ω	
R97	1meg	
R98	1.5meg	
R99	82K	
R100	220Ω 7W	#31-174
R101	220Ω 7W	#31-174
R102	330K	
R103	47K	
R104	330K	
R105	47K	
R106	2200Ω 1W	
R107	100K	
R108	270Ω	
R109	10K	

Note 1. When R12 is 1200Ω 2W, R13 is not used.
Note 2. When R22 is 18K 1W, R23 is not used.
Note 3. When R26 is 18K 1W, R27 is not used.
Note 4. Not used in some versions.
* Alternate Value.
# Pilot Part Number.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		PILOT PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	FM Ant. Trans.	75-53						
L2	FM Ant. Coil	70-87						
L3	RF Choke	75-52	19-2002	19-2002		4582		.15uh
L4	Cathode Choke	75-19	19-1001	19-1001	BC-562	4604		1.6uh
L5	RF Choke	75-33	19-1004	19-1004	SW-631	4609		5uh
L6	RF Choke							
L7	FM RF Coil	71-48						
L8	Cathode Choke	75-33	19-1004	19-1004	SW-631	4609		5uh
L9	FM Osc. Coil	72-83						
L10	Fil. Choke	75-19	19-1001	19-1001	BC-562	4604		1.6uh
L11	Fil. Choke	75-19	19-1001	19-1001	BC-562	4604		1.6uh
L12	1st FM IF Trans.	273-151	16-3487	16-3487	FM-254	1463		
L13	2nd FM IF Trans.	273-151	16-3487	16-3487	FM-254	1463		
L14	3rd FM IF Trans.	273-151	16-3487	16-3487	FM-254	1463		
L15	Limiter Grid Choke	75-51	19-3075	19-3075	TV-186	6172	VP-2	80uh
L16	Discriminator	279-78	17-3494	17-3494	FM-253	1464		
L17	Loopstick	270-57			BC-419			
L18	AM RF Coil	71-43						
L19	AM Osc. Coil	72-78			BC-393	70-OSC		
L20	1st AM IF Trans.	273-129	16-6758	16-6758	BC-352	12-C1	RF-1	
L21	2nd AM IF Trans.	273-129	16-6758	16-6758	BC-353	12-C2	RF-2	
L22	10KC Filter	79-106						
L23	Line Choke	75-19	19-1001	19-1001	BC-562	4604		1.6uh
L24	Line Choke	75-19	19-1001	19-1001	BC-562	4604		1.6uh

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	PILOT PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V Ⓐ .75A	400 VCT Ⓐ .110A	6.3V Ⓐ 4.7A	55-74						
	SEC. 3	SEC. 4	SEC. 5							
	6.3V Ⓐ .9A	6.3V Ⓐ .3A								

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		PILOT PART No.	CBS PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M1	1N541	1N541*	1N636	1N295	1N295	Disc (Pigtail) Matched
M2	1N541	1N541*	1N636	1N295	1N295	Disc (Pigtail) Pair
M3	1N541	1N541	1N636	1N295	1N295	FM AVC (Pigtail)
M4	1N541	1N541	1N636	1N295	1N295	AM Det. (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	PILOT PART No.	NOTES
M5	Tuning Cap.	26-66	FM, 3 Gang
M6	Tuning Cap.	26-67	AM, 3 Gang (Ant. 24—489mmf, RF 30—506mmf, Osc.21—165mmf)
M7	Switch	100-153	Selector (Rotary Wafer Type)
M8	Switch	100-147	Mode (Rotary Wafer Type)
M9	Switch	101-26	Loudness (DPDT Slide Type)
M10	Switch	101-29	Auto Shut Off (SPDT Slide Type)

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder with CIRCUITRACE®

SILVERTONE MODELS
52, 54 (CH. 132.48500)

SILVERTONE MODELS
52, 54 (CH. 132.48500)

MODEL 54

SILVERTONE MODELS
52, 54 (CH. 132.48500)

TRADE NAME	Silvertone Models 52, 54 (Ch. 132.48500)
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan Ave., Chicago, Illinois
TYPE SET	AC Operated 5 Tube AM Receiver With Stereo Output and 4 Speed Automatic Record Changer
POWER SUPPLY	110-120 Volts AC, 60 Cycles
TUNING RANGE	BROADCAST 540-1670KC RATING 33 Watts, 134 Amp. @ 117 Volts AC

FOR SERVICE INFORMATION ON RECORD CHANGER 528.56921 - SEE SILVERTONE 528.56310 - PHOTOFACT SET 417 FOLDER 10

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1mfd capacitor in series with low side of signal generator. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1 thru A4, A7 .... GENERAL CEMENT #8282, 8606, 8606L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A5, A6 ..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

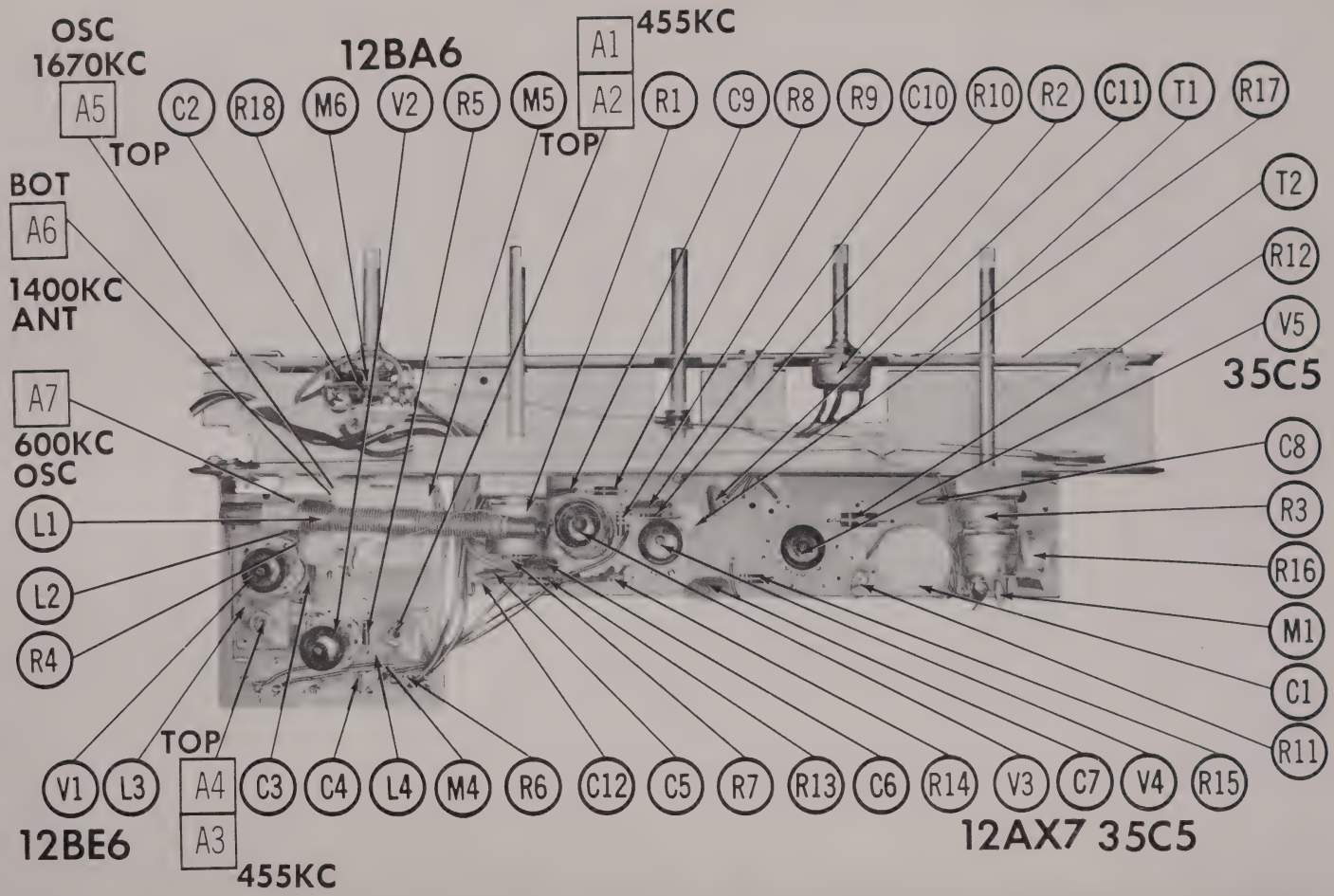
	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of Converter. Low side to B-.	455KC (400∿ Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	Loop	1670KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	1400KC	Tune to 1400KC signal	"	A6	"
4.	"	600KC	Tune to 600KC signal	"	A7	Adjust for maximum output while rocking tuning gang.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

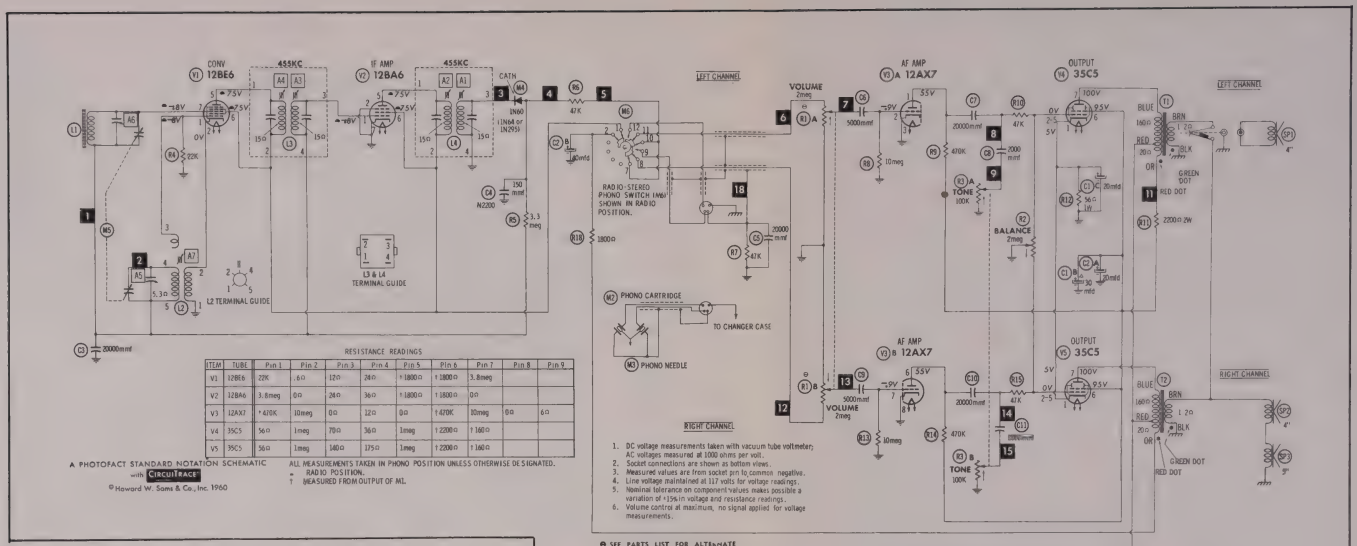
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

JP764

SET 488 FOLDER 12



CHASSIS-TOP VIEW



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12BE6	22K	0Ω	12Ω	24Ω	†1800Ω	†1800Ω	3.8meg		
V2	12BA6	3.8meg	0Ω	24Ω	36Ω	†1800Ω	†1800Ω	0Ω		
V3	12AX7	*470K	10meg	0Ω	12Ω	0Ω	†470K	10meg	0Ω	6Ω
V4	35C5	56Ω	1meg	70Ω	36Ω	1meg	†2200Ω	†160Ω		
V5	35C5	56Ω	1meg	140Ω	175Ω	1meg	†2200Ω	†160Ω		

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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ALL MEASUREMENTS TAKEN IN PHONO POSITION UNLESS OTHERWISE DESIGNATED.
= RADIO POSITION.
† MEASURED FROM OUTPUT OF M1.

RIGHT CHANNEL

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

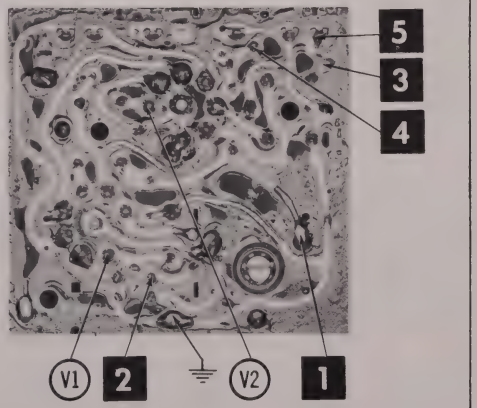
● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

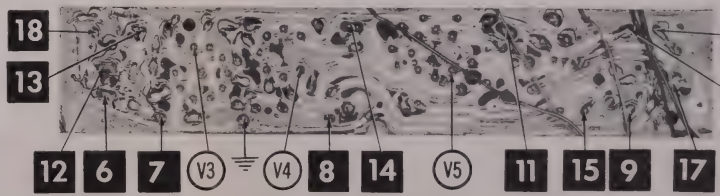
SILVERTONE MODELS 52, 54 (CH. 132.48500)



A Howard W. Sams CIRCUITRACE Photo

PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



A Howard W. Sams CIRCUITRACE Photo

PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

PARTS LIST AND DESCRIPTIONS

TUBES

◆ CBS ◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	AM Converter	12BE6	V4	Left Channel Output	35C5
V2	AM IF Amp.	12BA6	V5	Right Channel Output	35C5
V3	Left Channel AF Amp.- Right Channel AF Amp.	12AX7			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■100	150	43711-8	PWH3-81-50	C0120 †	PFP311.12		PCL-3431.1	
B	▲30	150							
C	20	25							
C2A	20	150	43952-3	PRS2180	BBRD4215	TCD465	TDLD-5	TVA-2438	
B	40	150							

† Use Printed Circuit Adaptors #55277 and 55278.

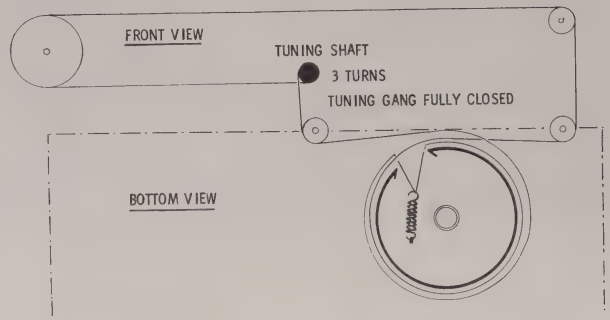
FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	20000		BPD-02	DD-203	BYB6S2	CCD-203	GP120	5HK-S20
C4	150 N2200	#43957-2				*		30TCY-T15
C5	20000		BPD-02	DD-203	BYB6S2	CCD-203	GP120	5HK-S20
C6	5000		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C7	20000		BPD-02	DD-203	BYB6S2	CCD-203	GP120	5HK-S20
C8	2000		BPD-002	DD-202	BYA10D2	CCD-202	GP220	5HK-D20
C9	5000		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C10	20000		BPD-02	DD-203	BYB6S2	CCD-203	GP120	5HK-S20
C11	2000		BPD-002	DD-202	BYA10D2	CCD-202	GP202	5HK-D20
C12	20000		BPD-02	DD-203	BYB6S2	CCD-203	GP120	5HK-S20

Silvertone Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

DIAL CORD STRINGING



PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SILVERTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	2meg		47100-6 ①					Volume, Left Channel
B	2meg							Volume, Right Channel
R2A	2meg		47500-4	B-75 Not Req.	A47-2meg-S FS-3	Q11-139 Not Req.	U56 Not Req.	Balance
B	Shaft							
R3A	100K		47100-5					Tone, Left Channel
B	100K							Tone, Right Channel
C	Switch							Power On-Off

① Some versions may use 1meg in this application.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R4	22K	
R5	3.3meg	
R6	47K	
R7	47K	
R8	10meg	

ITEM No.	RATING	REMARKS
R9	470K	
R10	47K	
R11	2200Ω 2W	
R12	56Ω 1W	
R13	10meg	

ITEM No.	RATING	REMARKS
R14	470K	
R15	47K	
R16	82Ω 5W	
R17	68Ω 5W	
R18	1800Ω	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		SILVERTONE PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Loopstick	46568-2	14-9017	14-9017	BC-419	2001		
L2	Osc. Coil	43644-2						
L3	Input IF Trans.	44282-1	16-6780	16-6780	BC-356	13-PC9	RF-4	
L4	Output IF Trans.	44282-1	16-6780	16-6780	BC-357	13-PC10	RF-4	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	SILVERTONE PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2100Ω Tap @ 11%	6-8Ω	46200-3							
T2	2100Ω Tap @ 11%	6-8Ω	46200-3							

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SILVERTONE PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	45600-10	4A1	
SP2	4"	PM	3-4Ω	45600-10	4A1	
SP3	5"	PM	6-8Ω	45599-8	5A12G.5	

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					
	CURRENT (Measured)	SILVERTONE PART No.	INTERNATIONAL PART No.	ITT PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.080A		2E4	HA154	K200	SR200	Silicon Type

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA								
	SILVERTONE PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		JENSEN PART No.		SONOTONE PART No.	
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE
M2	33-311-0	13TB		26S	S1-1 & S3-3			8TA4-S	N-8TA-S

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	SILVERTONE PART No.	CLEVITE WALCO PART No.	JENSEN PART No.	
M3	83-1252 (LP)	W-102MGS † or W-102MGD ♦	E98X † or E98XD ♦	† Jewel ♦ Diamond
	83-1250 (78RPM)	W-101STS † or W-101STD ♦	E98 † E98D ♦	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		SILVERTONE PART No.	CBS PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M4	1N60 *		1N60	1N60	1N60	Detector

* Alternate Type 1N64, 1N295 may be used in this application

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M5	Tuning Cap.	48068-1	2 Gang
M6	Switch	46967-3	Function
M7	Switch	69-282-0	Speed (Part of Changer)
M8	Switch	84-6552	Off-On (Part of Changer)
M9	Motor	59-89	Turntable Drive (Part of Changer)
	45 RPM Spindle	84-6197	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	48091-139	Tuning
Knob	48092-139	Volume
Knob	48089-139	Off-On Tone
Knob	48040-139	Function
Knob	48090-139	Balance
Pointer	48050-1	
Dial Glass	48074	
Cabinet Front	48013-139	
Cabinet Bottom	48022-129	
Cabinet Top	48032-129	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

Low-Loss Shielded Lead (Interconnecting) .....Use BELDEN No. 8401

Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT® Folder

**TANDBERG
MODELS 4, 4F**

TANDBERG
MODELS 4, 4F

MODEL 4F

TANDBERG
MODELS 4, 4F

TRADE NAME	Tandberg Models 4, 4F
IMPORTER	Tandberg of America, Inc., 8 Third Ave., Pelham, N. Y.
TYPE SET	AC Operated 5 Tube Tape Recorder Amplifier
POWER SUPPLY	110-125-145-165-200-220-245 Volts AC, 60 Cycles
RATING	50 Watts, .46 Amp. @ 117 Volts AC (Play)

FOR SERVICE INFORMATION ON TAPE TRANSPORT MECHANISM - SEE PHOTOFACT SET 433 FOLDER 13

SET 488 FOLDER 13

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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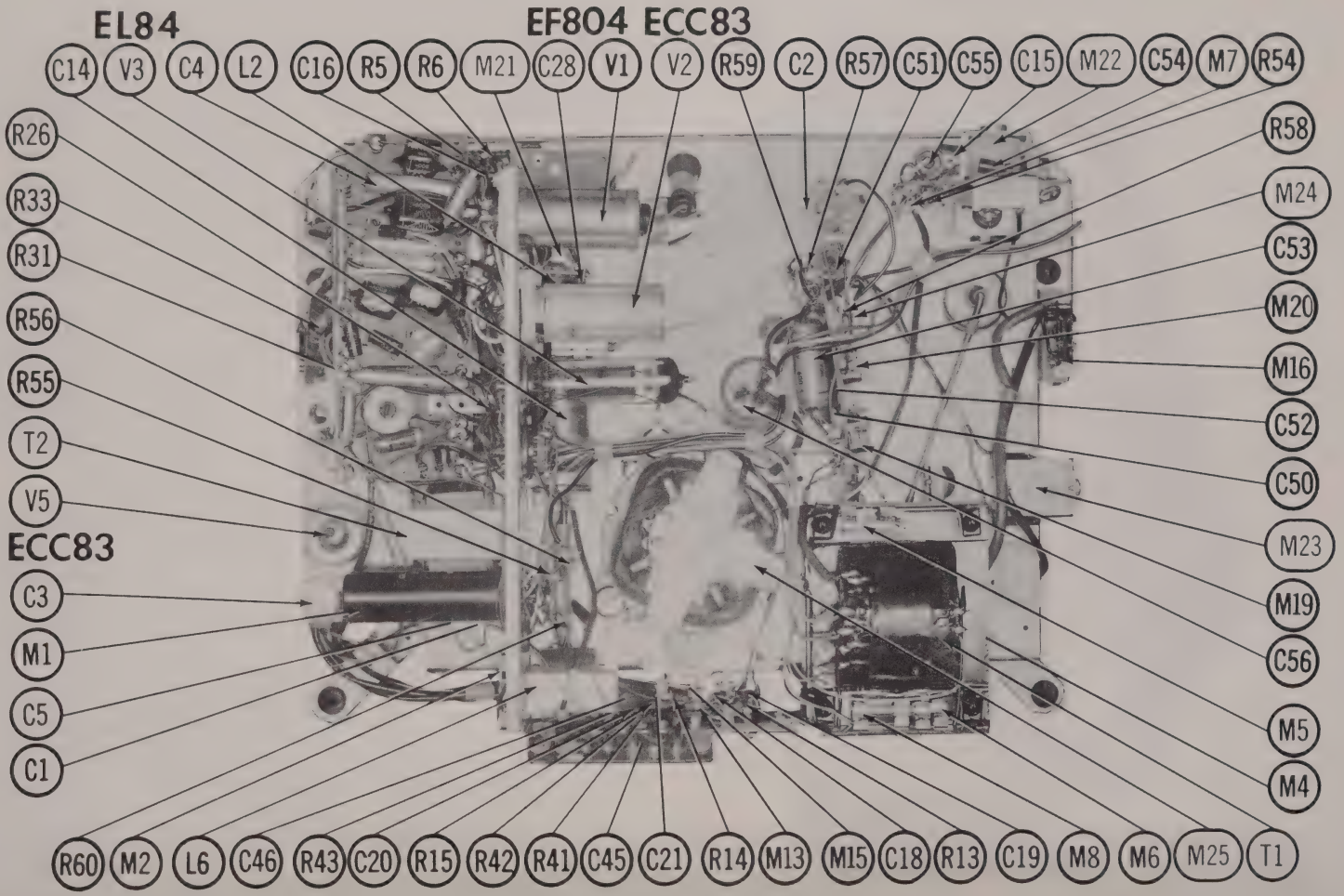
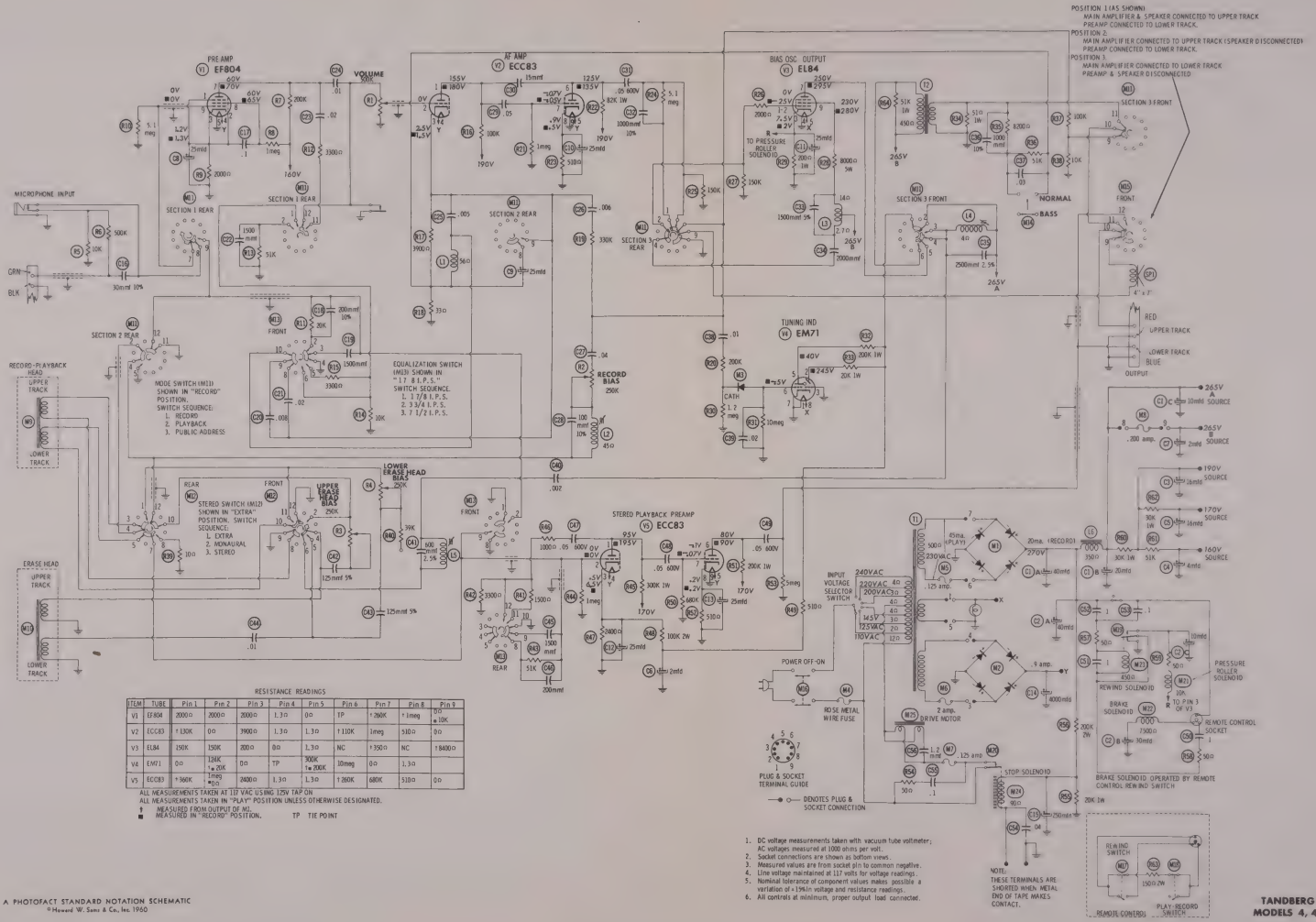


CHASSIS BOTTOM VIEW



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	EF804	2000Ω	2000Ω	2000Ω	1.3Ω	0Ω	TP	†.26ΩK	†.1meg	0Ω ▪.10K
V2	ECC83	†.130K	0Ω	3900Ω	1.3Ω	1.3Ω	†.110K	.1meg	510Ω	0Ω
V3	EL84	150K	150K	200Ω	0Ω	1.3Ω	NC	†350Ω	NC	†8400Ω
V4	EM71	0Ω	124K †▪.20K	0Ω	TP	300K †▪.200K	10meg	0Ω	1.3Ω	
V5	ECC83	†.360K	1meg ▪0Ω	2400Ω	1.3Ω	1.3Ω	†.260K	680K	510Ω	0Ω

ALL MEASUREMENTS TAKEN AT 117 VAC USING 125V TAP ON
ALL MEASUREMENTS TAKEN IN "PLAY" POSITION UNLESS OTHERWISE DESIGNATED.
† MEASURED FROM OUTPUT OF M1.
▪ MEASURED IN "RECORD" POSITION. TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

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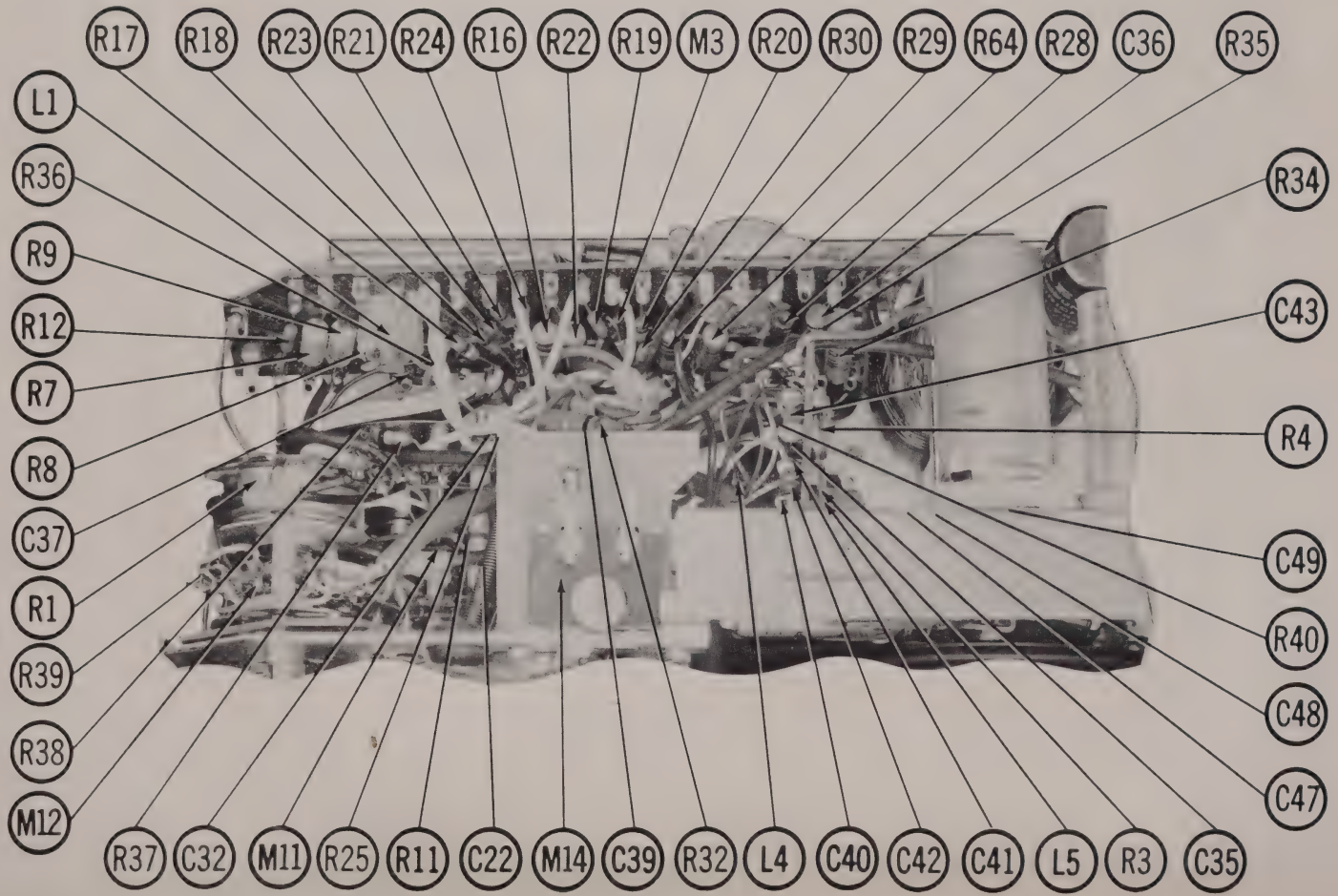
TANDBERG
MODELS 4, 4F

TANDBERG
MODEL 4

AUDIO — SUB CHASSIS

FOLDER 13



RECORD—BIAS SUB CHASSIS

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (CBS / GENERAL ELECTRIC)
V1	Preamplifier	EF804
V2	AF Amplifier	ECC83
V3	Output - Bias Osc.	EL84

ITEM No.	USE	TYPE (RAYTHEON / SYLVANIA)
V4	Tuning Indicator	EM71
V5	Stereo Playback Preamplifier	ECC83

ELECTROLYTIC CAPACITORS

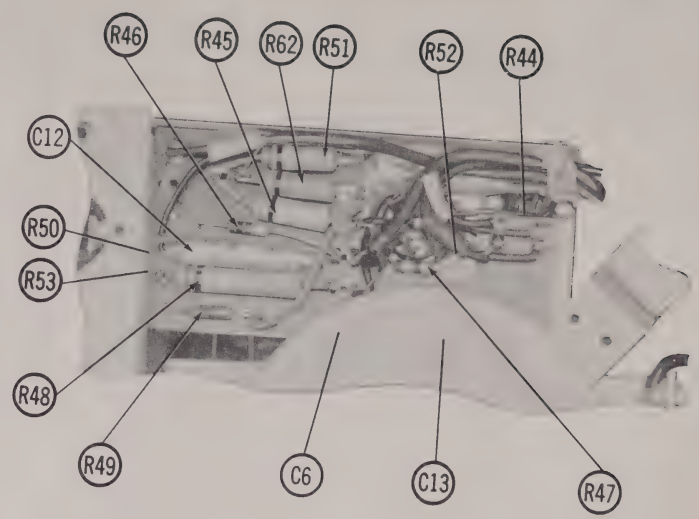
ITEM No.	RATING CAP.	RATING VOLT.	TANDBERG PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	40	350	160.15	AFH3-28-30		FP231.3			
B	20	350				TC78			
C	10	350							
C2A	40	350		AFH3-123-30					
B	30	350				FP259			
C	10	350				TC78			
C3	16	350	160.5						
C4	4	350	160.6	PRSI640	BRI645	TC64	TD-16-350	TVA-1607	
C5	16	350	160.5	PRSI600	BR435	TC60	TD-4-450	TVA-1601	
C6	2	350	160.27	PRSI640	BRI635	TC64	TD-16-350	TVA-1607	
C7	2	350	160.27	PRSI705	BR245	TC595	TD-2-450	TVA-1701	
C8	25	12	160.4	PRSI705	BR245	TC595	TD-2-450	TVA-1701	
C9	25	12	160.4	XPP-12025	BBR25-25	TT25X25	TD-25-25	TE-1131	
C10	25	12	160.4	XPP-12025	BBR25-25	TT25X25	TD-25-25	TE-1131	
C11	25	12	160.4	XPP-12025	BBR25-25	TT25X25	TD-25-25	TE-1131	
C12	25	12	160.4	XPP-12025	BBR25-25	TT25X25	TD-25-25	TE-1131	
C13	25	12	160.4	XPP-12025	BBR25-25	TT25X25	TD-25-25	TE-1131	
C14	4000	6	160.4	XPP-12025	BBR25-25	TT25X25	TD-25-25	TE-1131	
C15	250	30	160.18					TE-1131	
				PRSI380	BR2505	TC50025	TD-250-50	HLVB-4010 TVA-1312	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C16	30 10%		NPO-SI 30	DD-300	LI0Q3	CCD-300	GP430	10TS-Q30
C17	.1 500V		P688N-1	DF-104	CUB6P1	6DP-3-104	GEM-601	6TM-P1
C18	200 10%		NPO-SI 200	DD-201	LI0T2	CCD-201	GP320	10TS-T20
C19	1500		SI 1500	DD-152	BYAI0DI5	CCD-152	GP215	5HK-DI5
C20	.008 150V		P288N-008	DD-822	HVE16D8	6DP-2-802	GEM-628	6TM-D8
C21	.02 150V		P288N-02	DD-203	CUB2S2	4DP-2-203	GEM-412	2TM-S2
C22	1500		SI 1500	DD-152	BYAI0DI5	CCD-152	GP215	5HK-DI5
C23	.02 500V		P688N-02	DD-203	CUB6S2	6DP-2-203	GEM-612	6TM-S2
C24	.01 400V		P488N-01	DD-103	CUB4SI	4DP-1-103	GEM-411	4TM-SI
C25	.005 150V		P288N-005	DD-502	CUB6D5	6DP-1-502	GEM-625	6TM-D5
C26	.006 400V		P488N-006		CUB6D6	6DP-1-602	GEM-626	6TM-D6
C27	.04 150V		P288N-04	DD-403	CUB6S4	4DP-3-403	GEM-414	6TM-S4
C28	100 10%		NPO-SI 100	DD-101	LI0T1	CCD-101	GP310	10TS-T10
C29	.05 500V		P688N-05	DD-503	CUB6S5	6DP-3-503	GEM-615	6TM-S5
C30	15		SI 15	DD-150	LI0Q15	CCD-150	GP415	10TS-Q15
C31	.05 600V		P668N-05	DD-503	CUB6S5	6DP-3-503	GEM-615	6TM-S5
C32	1000 10%			DD-102	1R5DI	CCD-102	GP210	10TS-D10
C33	1500 5%				1R5DI5	CM-20B-152J	MCE456	MS-215
C34	2000				BYAI0D2	CCD-202	GP220	5HK-D20
C35	2500 2.5%	#160.9	SI 2000	DD-202			MCE460	
C36	1000 10%			DD-102	1R5DI	CCD-102	GP210	10TS-D10
C37	.03 150V		P288N-03	DD-303	CUB6S3	4DP-2-303	GEM-413	4TM-S3
C38	.01 400V		P488N-01	DD-103	CUB4SI	4DP-1-103	GEM-411	4TM-SI0
C39	.02 150V		P288N-02	DD-203	CUB2S2	4DP-2-203	GEM-412	2TM-S2
C40	.002 500V		P688N-002	DD-202	CUB6D2	6DP-1-202	GEM-622	6TM-D2
C41	600 2.5%	#160.11						
C42	125 5%			TCZ-130	22R5T12	CM-19B-131J		
C43	125 5%			TCZ-130	22R5T12	CM-19B-131J		
C44	.01 150V		P288N-01	DD-103	CUB4SI	4DP-1-103	GEM-411	4TM-SI
C45	1500		SI 1500	DD-152	BYAI0DI5	CCD-152	GP215	5HK-DI5
C46	200		SI 200	DD-201	LI0T2	CCD-201	GP320	10TS-T20

STEREO PREAMP—BOTTOM VIEW



FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C47	.05 600V		P688N-05	DD-503	CUB6S5	6DP-3-503	GEM-615	6TM-S5
C48	.05 600V		P688N-05	DD-503	CUB6S5	6DP-3-503	GEM-615	6TM-S5
C49	.05 600V		P688N-05	DD-503	CUB6S5	6DP-3-503	GEM-615	6TM-S5
C50	.1 400V		P488N-1	DF-104	CUB4PI	4DP-3-104	GEM-401	4TM-PI
C51	.1 400V		P488N-1	DF-104	CUB4PI	4DP-3-104	GEM-401	4TM-PI
C52	.1 400V		P488N-1	DF-104	CUB4PI	4DP-3-104	GEM-401	4TM-PI
C53	.1 400V		P488N-1	DF-104	CUB4PI	4DP-3-104	GEM-401	4TM-PI
C54	.04 150V		P488N-1	DF-104	CUB4PI	4DP-3-104	GEM-401	4TM-PI
C55	.1 400V		P288N-04	DD-403	CUB6S4	6DP-3-403	GEM-415	4TM-S4
C56	1.2 380-470V		P488N-1	DF-104	CUB4PI	4DP-3-104	GEM-401	4TM-PI

Tandberg Part Number

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	TANDBERG PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	log	133.1	AB-60				Volume
B	Shaft			AK-29				
R2	250K	log	155.6					Record Bias
R3	250K	log	155.6					Upper Erase Head Bias
R4	250K	log	155.6					Lower Erase Head Bias

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R5	10K	
R6	500K	
R7	200K	
R8	1meg	
R9	2000Ω	
R10	5.1meg	
R11	20K	
R12	3300Ω	
R13	51K	
R14	10K	
R15	3300Ω	
R16	100K	
R17	3900Ω	
R18	33Ω	
R19	330K	
R20	200K	
R21	1meg	
R22	82K 1W	
R23	510Ω	
R24	5.1meg	

ITEM No.	RATING	REMARKS
R25	150K	
R26	2000Ω	
R27	150K	
R28	8000Ω 5W	
R29	200Ω 1W	
R30	1.2meg	
R31	10meg	
R32	200K 1W	
R33	20K 1W	
R34	51Ω	
R35	8200Ω	
R36	51K	
R37	100K	
R38	10K	
R39	10Ω	
R40	39K	
R41	1500Ω	
R42	3300Ω	
R43	51K	
R44	1meg	

ITEM No.	RATING	REMARKS
R45	300K 1W	
R46	1000Ω	
R47	2400Ω	
R48	100K 2W	
R49	510Ω	
R50	680K	
R51	200K 1W	
R52	510Ω	
R53	5meg	
R54	50Ω	
R55	20K 1W	
R56	200K 2W	
R57	50Ω	
R58	50Ω	
R59	50Ω	
R60	30K 1W	
R61	51K	
R62	30K 1W	
R63	150Ω 2W	
R64	51K 1W	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		TANDBERG PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Tone Compensation							
L2	Bias Freq. Trap	137.1						
L3	Bias Osc.	137.3						
L4	Plate Coil	137.2						
L5	2nd Harmonic Trap	137.4						

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ∿)	TANDBERG PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L6	.045A	350Ω	8.5 Hy.	137.5						

TRANSFORMER (POWER)

ITEM No.	RATING		REPLACEMENT DATA						
	PRIMARY	SEC. 1	TANDBERG PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	245V Tap @ 220V, 200V, 165V, 145V, 125V, 110V, 165V @ .110A, 117V @ .32A, (125V Tap)	230V @ .045A SEC. 2 6.3V @ 1.1A SEC. 3 6.3V @ 1.1A	268E						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	TANDBERG PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	7500Ω	3-4Ω	684-D	24S12 ①	A-2902①	AU-606	A-3824	24S12 ①	S-9X	① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	TANDBERG PART No.	QUAM PART No.	
SP1	4" x 7"	PM	3-4Ω		47A1	

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	TANDBERG PART No.	INTERNATIONAL PART No.	ITT PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1	.045A	111.2 *					* Selenium Bridge
M2	.9A	111.22 *					† Selenium Diode
M3		111.41 †					

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			TANDBERG PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M4	Rose Metal		112.1					
M5		.125A	112.2					
M6		2A	112.10					
M7		.125	112.3					
M8		.200A	112.6					

MISCELLANEOUS

ITEM No.	PART NAME	TANDBERG PART No.	NOTES
M9	Head		Record-Playback (Special Made in Line Stereo Quadruple)
M10	Head		Erase (Quadruple)
M11	Switch		Mode (Rotary Wafer Type)
M12	Switch	133.71	Stereo-Monaural (Rotary-Wafer Type)
M13	Switch	135.6	Equalization (Rotary-Wafer Type)
M14	Switch	134.1	Bass
M15	Switch		Output (Rotary-Wafer Type)
M16	Switch	134.1	Power Off-On
M17	Switch		Rewind (Part of Remote)
M18	Switch		Play-Record (Part of Remote)
M19	Switch	134.42	Micro
M20	Switch	134.42	Micro
M21	Solenoid		Pressure Roller
M22	Solenoid	140.2	Brake
M23	Solenoid	140.3	Rewind
M24	Solenoid	140.1	Stop
M25	Motor	140.4	Drive

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder with CIRCUITRACE®

TOSHIBA
MODEL 8TM-294

TOSHIBA
MODEL 8TM-294

TOSHIBA
MODEL 8TM-294

TRADE NAME	Toshiba Model 8TM-294		
IMPORTER	Transistor World Corp., 52 Broadway, New York, 4, N.Y.		
TYPE SET	Battery Operated Transistorized Portable AM Receiver		
POWER SUPPLY	6 Volts DC	RATING	7 MA @ 6 Volts DC (No Signal, Min. Volume) 25 MA @ 6 Volts DC (Signal, Normal Volume)
TUNING RANGE-BROADCAST	535-1620KC		

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2, A3, A5 ..... GENERAL CEMENT #5000, 5003, 5066, 8271, 8272, 8276, 8277, 8290, 8609, 8722, 9150, 9298
WALSCO #2515, 2516, 2518, 2519, 2525, 2541
A4, A6 ..... GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Loop	455KC (400~ Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.	"	1600KC	1600KC	"	A4	"
3.	"	600KC	600KC	"	A5	"
4.	"	1400KC	Tune to 1400KC signal	"	A6	Adjust for maximum output while rocking tuning gang.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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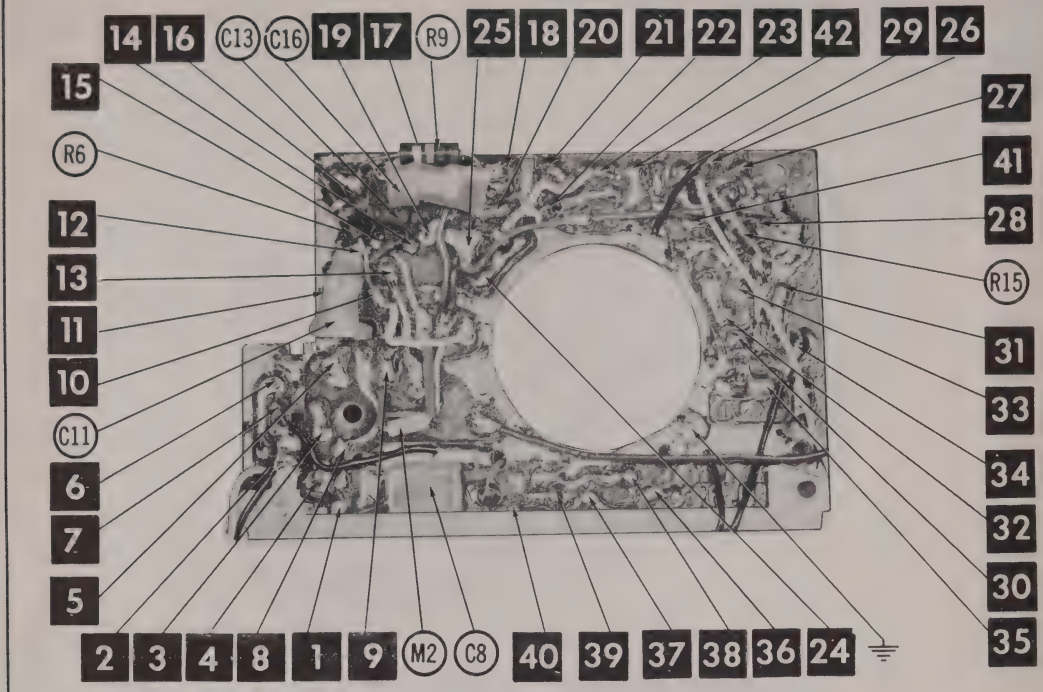
JF669

SET 488 FOLDER 14



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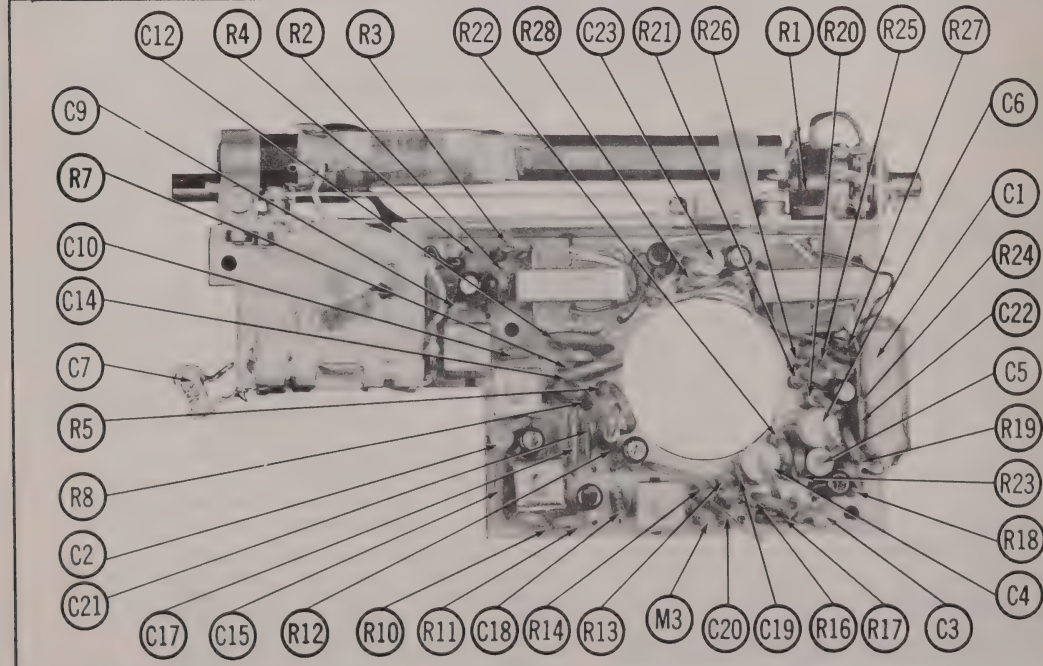
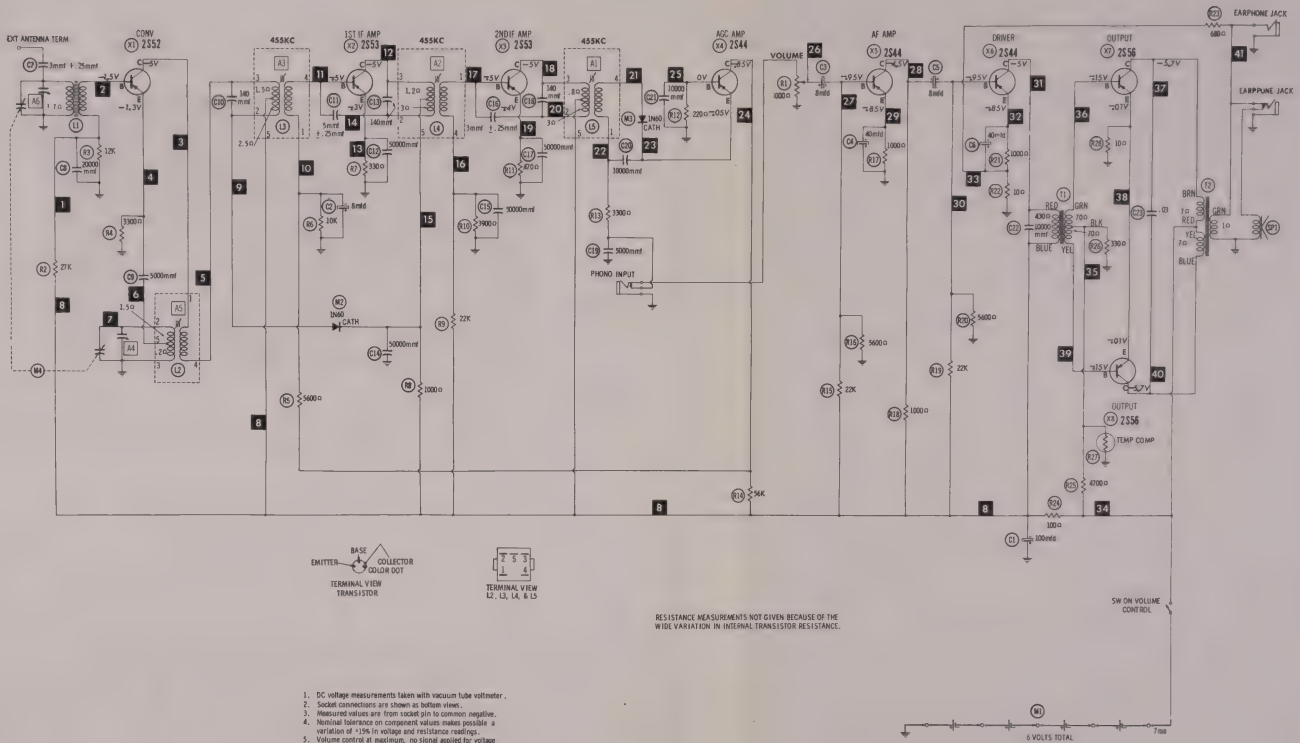
PRINTED BOARD



CHASSIS TOP VIEW – CAPACITOR, RESISTOR & MISC. IDENT.



RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
with CIRCUITRACE
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TOSHIBA
MODEL 8TM-294

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2S52	Converter		2N412	2N486	2N412	PNP
X2	2S53	1st IF Amp.		2N410	2N483	2N410	PNP
X3	2S53	2nd IF Amp.		2N410	2N483	2N410	PNP
X4	2S44	AGC Amp.		2N406	2N362		PNP
X5	2S44	AF Amp.		2N406	2N362		PNP
X6	2S44	Driver		2N406	2N362		PNP
X7	2S56	Output		2N408	2N632	2N408	PNP } Matched Pair
X8	2S56	Output		2N408	2N632	2N408	PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	TOSHIBA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	100	6		PWE6100	NLW100-12	TT6X100		TE-1102	
C2	8	3		XPP-3008	NLW8-6	TT6X8	ML8-6	TE-1052.5	
C3	8	3		XPP-3008	NLW8-6	TT6X8	ML8-6	TE-1052.5	
C4	40	3		PWE3040	NLW40-3	TT3X40	ML40-6	TE-1057	
C5	8	3		XPP-3008	NLW8-6	TT6X8	ML8-6	TE-1052.5	
C6	40	3		PWE3040	NLW40-3	TT3X40	ML40-6	TE-1057	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C7	3 ±.25mmf		NPO-SI 3.0	TCZ-3R3	C10V3C	CCTO-3R3	CNO-533	10TCC-V33
C8	20000		BPD-02	DD-203	BYB6S2		TA-120	TG-S20
C9	5000		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C10	140		NPO-SI 150	TCZ-150	L10T15	CCS-151	CNO-315	10TS-T15
C11	5 ±.25mmf		NPO-SI 5.0	TCZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C12	50000		BPD-05	DD-503	H-0585		TA-150	TG-S50
C13	140		NPO-SI 150	TCZ-150	L10T15	CCS-151	CNO-315	10TS-T15
C14	50000		BPD-05	DD-503	H-0585		TA-150	TG-S50
C15	50000		BPD-05	DD-503	H-0585		TA-150	TG-S50
C16	3 ±.25mmf		NPO-SI 3.0	TCZ-3R3	C10V3C	CCTO-3R3	CNO-533	10TCC-V33
C17	50000		BPD-05	DD-503	H-0585		TA-150	TG-S50
C18	140		NPO-SI 150	TCZ-150	L10T15	CCS-151	CNO-315	10TS-T15
C19	5000		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C20	10000		BPD-01	DD-103	BYA105I		GP110	TG-S10
C21	10000		BPD-01	DD-103	BYA105I		GP110	TG-S10
C22	10000		BPD-01	DD-103	BYA105I		GP110	TG-S10
C23	.03 250V		P488N-03	DD-303	BYB6S3			

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	TOSHIBA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	5000Ω	1/4	40285					Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	27K	
R3	12K	
R4	3300Ω	
R5	5600Ω	
R6	10K	
R7	330Ω	
R8	1000Ω	
R9	22K	
R10	3900Ω	

ITEM No.	RATING	REMARKS
R11	470Ω	
R12	220Ω	
R13	3300Ω	
R14	56K	
R15	22K	
R16	5600Ω	
R17	1000Ω	
R18	1000Ω	
R19	22K	

ITEM No.	RATING	REMARKS
R20	5600Ω	
R21	1000Ω	
R22	10Ω	
R23	680Ω	
R24	100Ω	
R25	4700Ω	
R26	330Ω	
R27	Temp. Comp.	
R28	10Ω	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		TOSHIBA PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Loopstick							
L2	Osc. Coil							
L3	1st IF Trans.							
L4	2nd IF Trans.							
L5	3rd IF Trans.							

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC.	TOSHIBA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1.4	1		TR-3			TR-3		

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	TOSHIBA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	390Ω CT	10Ω		TR-19				TR-19		

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	TOSHIBA PART No.	QUAM PART No.	
SP1	2 3/4"	PM	10-12Ω	SP3004A	27A06Z12	

BATTERIES

ITEM No.	VOLTAGE	TOSHIBA PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1.5V	UM-3 *		1 *		1015 *		M-14R *	* 4 Required.

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		TOSHIBA PART No.	CBS PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	1N60		1N60	1N60	1N60	Overload (Pigtail)
M3	1N60		1N60	1N60	1N60	Detector (Pigtail)

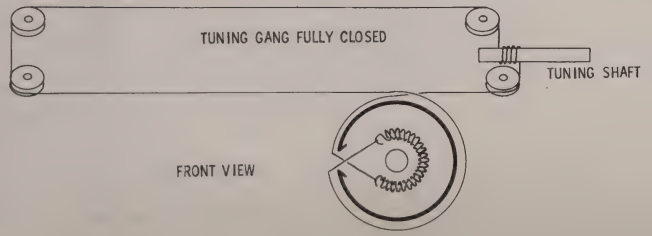
MISCELLANEOUS

ITEM No.	PART NAME	TOSHIBA PART No.	NOTES
M4	Tuning Cap.		2 Gang (Ant. 18-147mmf, Osc. 18-84mmf)

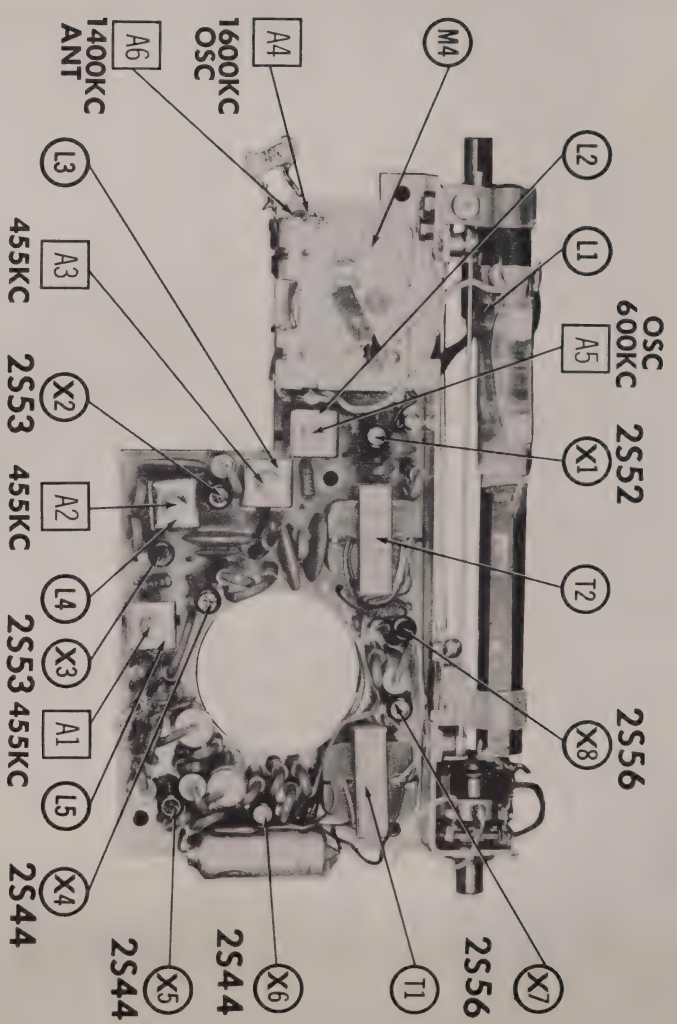
WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

DIAL CORD STRINGING



CHASSIS—TOP VIEW



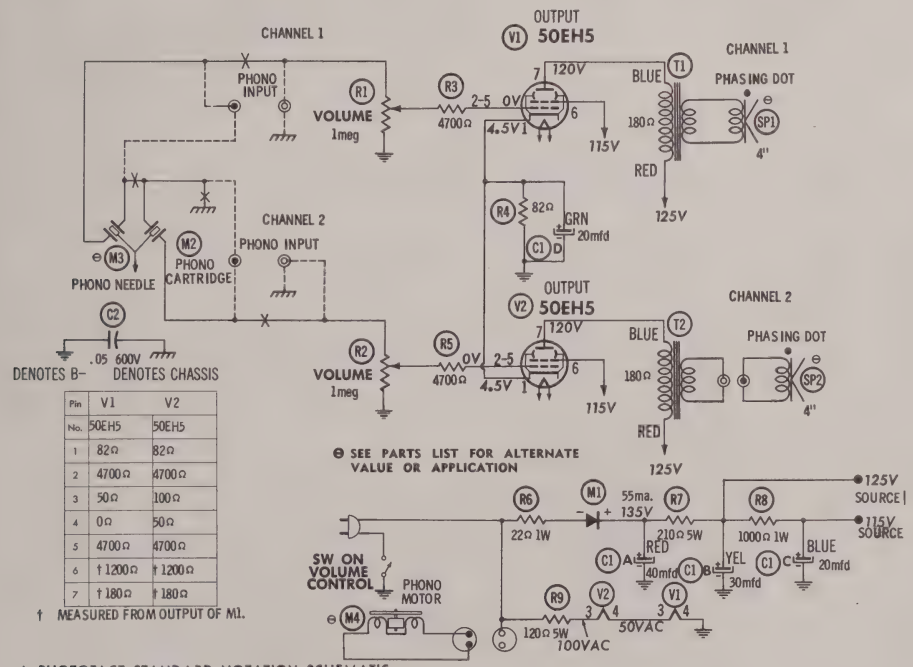
PHOTOFACT® Folder

TRUETONE MODEL 4DC5920

TRUETONE
MODEL 4DC5920

TRADE NAME	Truetone Model 4DC5920
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City 8, Mo.
TYPE SET	AC Operated 2 Tube Stereo Phono Amplifier With 4 Speed Manual Record Player
POWER SUPPLY	110-120 Volts AC, 60 Cycles RATING 27 Watts, .27 Amp @ 117 Volts AC (Less Motor)

TRUETONE
MODEL 4DC5920



Pin No.	V1	V2
1	82Ω	82Ω
2	4700Ω	4700Ω
3	50Ω	100Ω
4	0Ω	50Ω
5	4700Ω	4700Ω
6	†1200Ω	†1200Ω
7	†180Ω	†180Ω

† MEASURED FROM OUTPUT OF M1.

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JT708

SET488 FOLDER 15

PARTS LIST AND DESCRIPTIONS

TUBES

◆ CBS ◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Channel 1 Output	50EH5	V2	Channel 2 Output	50EH5

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA TRUETONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	40	150	EC-121		BBRQ44315C	WQ230	CDB-Q-1001	TVA-3448	
B	30	150						TVA-1410	
C	20	150							
D	20	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	.05 600V		P688N-05	DD-503	CUB6S5	6DP-3-503	GEM-615	6TM-S5

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA TRUETONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½	VC-118	B-70	A47-1meg-Z	Q13-137	U53	Volume, Channel 1
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R2A	1meg	½	VC-70	B-70-S	A47-1meg-Z	Q13-137	U53	Volume, Channel 2
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-12	76-1	US-76	Power Off-On

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R3	4700Ω	
R4	82Ω	
R5	4700Ω	

ITEM No.	RATING	REMARKS
R6	22Ω 1W	
R7	210Ω 5W	
R8	1000Ω 1W	

ITEM No.	RATING	REMARKS
R9	120Ω 5W	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA TRUETONE PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2400Ω	3-4Ω	AT-51	24S53	A-3025	AU-605	A-3332	24S53	S-12X	
T2	2400Ω	3-4Ω	AT-51	24S53	A-3025	AU-605	A-3332	24S53	S-12X	

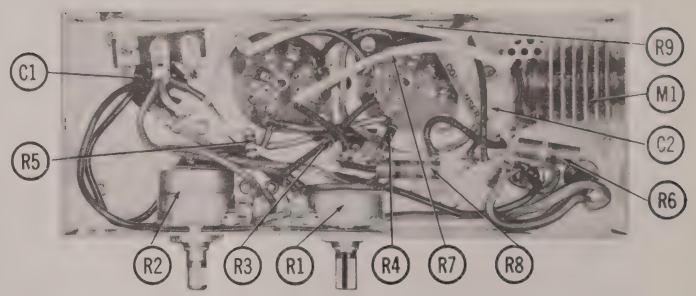
SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA TRUETONE PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	SPK-49	4A07	*May Be Used In Some Versions.
SP2	4"	PM	3-4Ω	SPK-49	4A07	
	4"	PM	3-4Ω	SPK-38 *	4A1	

RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA TRUETONE PART No.	INTERNATIONAL PART No.	ITT PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.055A	SR-4 *	T100 *	1235AH *	100A *	SR200 ◆	*Selenum Type ◆Silecon Type

CHASSIS—BOTTOM VIEW



PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA TRUTONE PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE	JENSEN PART No. CARTRIDGE	JENSEN PART No. NEEDLE	SONOTONE PART No. CARTRIDGE	SONOTONE PART No. NEEDLE
M2	PU-46	76TB	N8-7 † N8-3	96					

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA TRUETONE PART No.	CLEVITE WALCO PART No.	JENSEN PART No.	REMARKS
M3	NE-13 (78RPM)		CRA-57 † or CRA-57D ◆	† Jewel ◆ Diamond
	NE-14 (LP)		CRA-57X † or CRA-57XD † ◆	

MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M4	Motor Assembly	4-M-18	Complete
	Motor (Only)	4-M-81	
	Tone Arm Assy.	PU-47	Less Cartridge
	Idler Wheel	3-T-40	Walsco Part #1433

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	3-K-1000	Speed Selector
Knob	K-373	Volume
Cabinet	CA-366	

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No.	1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No.	8401
Phono Pick-up Arm Cable	Use BELDEN No.	8430 (Two Conductor - Twisted)

PHOTOFACT® Folder

WESTINGHOUSE MODELS H-R1100, H-R1101, H-R1102, H-R1103, H-R1200, H-R1201, H-R1202, H-R1203 (Ch. V-2509-1, -2)

WESTINGHOUSE MODELS H-R1100, H-R1101, H-R1102, H-R1103, H-R1200, H-R1201, H-R1202, H-R1203 (Ch. V-2509-1, -2)

MODEL H-R1201

TRADE NAME	Westinghouse Models H-R1100, H-R1101, H-R1102, H-R1103(Ch. V-2509-1); H-R1200, H-R1201, H-R1202, H-R1203 (Ch. V-2509-2)
MANUFACTURER	Westinghouse Electric Corp., Radio-TV Div., Metuchen, N. J.
TYPE SET	AC Operated 7 Tube AM Receiver With Stereo Output And 4 Speed Automatic Record Changer
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles
TUNING RANGE—BROADCAST	535 — 1620KC RATING 93 Watts, .86 Amp. @117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER PART #670V009H01 USED IN H-R1100 SERIES — SEE COLLARO CONQUEST (REVISED) — PHOTOFACT SET 408 FOLDER 6

FOR SERVICE INFORMATION ON RECORD CHANGER USED IN H-R1200 SERIES — SEE SIMILAR V-M 1201 — PHOTOFACT SET 436 FOLDER 18

ALIGNMENT INSTRUCTIONS

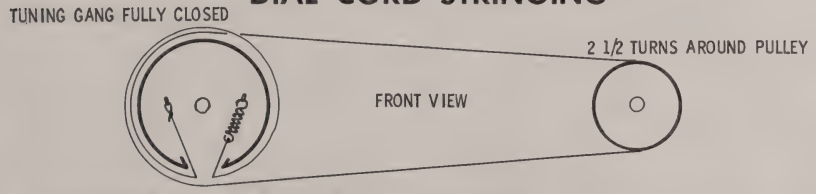
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools: A1 thru A4.... GENERAL CEMENT #5097, 8727
WALSCO #2515
A5, A6..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .01mfd to pin 7 (grid) of Converter. Low side to chassis.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Loop	1600KC	1600KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	1400KC	Tune to 1400KC signal.	"	A6	Adjust for maximum output while rocking tuning gang.

DIAL CORD STRINGING



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of JP907

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PARTS LIST AND DESCRIPTIONS

TUBES

◆ CBS ◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	AM Converter	6BE6	V5	Left Channel Output	6BQ5
V2	AM IF Amplifier	6BA6	V6	Right Channel Output	6BQ5
V3	Left Channel Preamp. - Right Channel Preamp.	7025	V7	Rectifier	5Y3GT
V4	Left Channel AF Amp. - Right Channel AF Amp.	7025 Note 1			

Note 1. In monaural, V4 is used as an AF Amplifier and Phase Inverter.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Westinghouse PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲80	450	218V037H03	AFH4-94-90	CU67	FP385.5		TVL-3816	
B	▲40	350			BR3035	TC77		TVA-1610	
C	▲30	350							
D	10	300							
C2	100	25	218V025H14	PRS1270	BBR100-25	TC2501	TD-100-25	TVA-1207	
C3	4	50NP	218V025H19	NP-PRS7405	BBR8-150 †	TCN504		TVANS-1302.5*	
C4	4	50NP	218V025H19	NP-PRS7405	BBR8-150 †	TCN504		TVANS-1302.5*	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
† Use 2 units. Connect negative terminals together. Connect positive terminals into circuit the same as the original non-polarized unit.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C6	3300		BPD-0033	DD-332	BYA10D33	CCD-332	GP233	5HK-D33
C7	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	GP247	5HK-D47
C8	3300		BPD-0033	DD-332	BYA10D33	CCD-332	GP233	5HK-D33
C9	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	GP247	5HK-D47
C10	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	GP247	5HK-D47
C11	100		BPD-0001	DD-101	Li0T10	CCD-101	GP310	10TS-T10
C12	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C13	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C14	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C15	100		BPD-0001	DD-101	Li0T10	CCD-101	GP310	10TS-T10
C16	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C17	.022 400V		P488N-022	DD-203	CUB4S47	4DP-2-223	GEM-4122	4TM-S22
C18	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C19	.033 600V	Note 1	P688N-033	DD-303	CUB6S33	6DP-3-333	GEM-6133	6TM-S33
C20	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47

Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Westinghouse PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½	270V062H03	B-70	AD47-1meg-Z		FA16A	Loudness, Left Channel
B	1meg	½		SR-70	Not Req.		RU16A	Loudness, Right Channel
C	Shaft			Not Req.	FS-3		CS3500	
R2A	1meg	½	270V062H04	B-744				Balance, Left Channel
B	1meg	½		SR-68			UE4163	Balance, Right Channel
C	Shaft			Not Req.				
R3A	1meg	½	270V062H05	B-69	AD47-1meg-S		FA16L	Bass, Left Channel
B	1meg	½		SR-69	Not Req.		RU16L	Bass, Right Channel
C	Shaft			Not Req.	FS-3		CS3500	
R4A	1meg	½	270V082H01					Treble, Left Channel
B	1meg	½						Treble, Right Channel
C	Shaft						UE4105-S	
D	Switch							Push Pull Off-On

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R5	22K	
R6	15K 2W	
R7	3.3meg	
R8	220K	
R9	220K	
R10	1000Ω	
R11	33K 1W	
R12	68Ω	
R13	560K	
R14	270K	
R15	10meg	
R16	270K	

ITEM No.	RATING	REMARKS
R17	100K	
R18	2200Ω	
R19	47K	
R20	1000Ω	
R21	330K	
R22	27K	(22K) *
R23	220Ω	
R24	75Ω 4W	
R25	560K	
R26	100K	
R27	270K	
R28	10meg	

ITEM No.	RATING	REMARKS
R29	270K	
R30	100K	
R31	2200Ω	
R32	47K	
R33	1000Ω	
R34	330K	
R35	220Ω	
R36	230Ω 4W	
R37	1500Ω 4W	
R38	22K	
R39	100K	
R40	33Ω	

* Alternate Value.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Westinghouse PART No.	REPLACEMENT DATA
K1	Det. RF Filter	220mmf, 220mmf, 47K	219V035H01	
K2	Tone Comp. (Left Channel)	1000mmf, 2200mmf, 2200mmf, 22000mmf, 10K, 150K	219V021H01	
K3	Tone Comp. (Right Channel)	1000mmf, 2200mmf, 2200mmf, 22000mmf, 10K, 150K	219V021H01	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA Westinghouse PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Loopstick	310V054H01	14-7002	14-7002	BC-418			
L2	Osc. Coil	230V085H01				69-OSC		
L3	1st IF Trans.	235V057H01	16-6758	16-6758	BC-352	12-C1	RF-1	
L4	2nd IF Trans.	235V057H02	16-6758	16-6758	BC-353	12-C2	RF-2	

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA Westinghouse PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V@ .86A	620 VCT @ .110A	5V@2A	410V014H01	22R05U①			P-8177①	22R05U①	
	SEC. 3	SEC. 4	SEC. 5							
	6.3VCT @ 2.8A									

① Drill new mounting holes.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA Westinghouse PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	6800Ω CT	6-8Ω	430V089H02①							
T3	5000Ω	6-8Ω	430V090H02②							

① Some versions may use Part #430V089H01.
② Some versions may use Part #430V090H01.

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA Westinghouse PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	12"	PM	6-8Ω	570V072H01①	12A6AZ6.6	① Used in Models H-R1200 Series only.
SP2	4"	PM	6-8Ω	570V071H01	6A1Z6.1	② Used in Models H-R1100 Series only.
SP3	12"	PM	6-8Ω	570V072H01①	12A6AZ6.6	
SP4	4"	PM	6-8Ω	570V071H01	6A1Z6.1	
	8"	PM		570V076H01②		

PARTS LIST AND DESCRIPTIONS (Continued)

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA							
	Westinghouse PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		JENSEN PART No.		SONOTONE PART No.	
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE
M1	671V009H01① 671V001H02 ②	13TB		26S	S1-1 S3-1			8TA4-S	N-8TA-S

① Used in Models H-Rl200 Series.
② Used in Models H-Rl100 Series.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	Westinghouse PART No.	CLEVITE WALCO PART No.	JENSEN PART No.	
M2		W-103STSS † or W-103STSD ♦	S-69X † or S-69XSD †♦ or S-69XDD ♦	† Jewel ♦ Diamond

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		Westinghouse PART No.	CBS PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M3	LD-145	296V002H06	1N60	1N295	1N295	AM Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	Westinghouse PART No.	NOTES
M4	Tuning Cap.	330V031H01	2 Gang. (Ant. 11-317mmf, Osc. 9-142mmf)
M5	Switch	756V045H01	Function
M6	Switch	756V046H01	Speaker (Models H-Rl200 Series)

CABINETS & CABINET PARTS

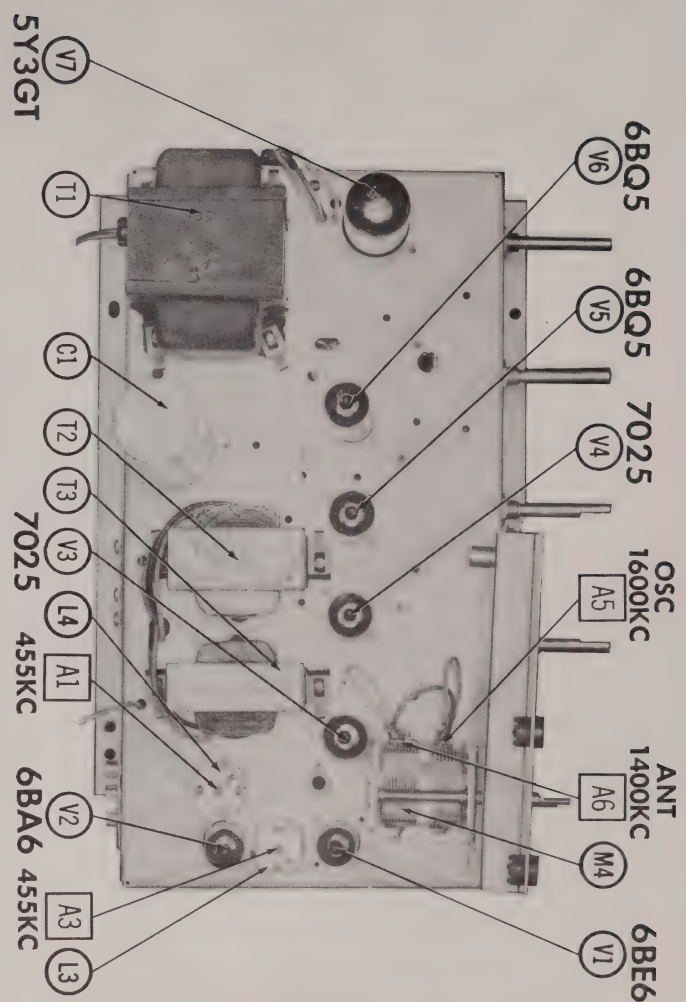
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	559V072H01	AM Tuning
Knob	559V071H01	Assy., Loudness, Bass & Treble (rear)
Knob	550V114H04	Assy., Loudness, Bass, & Treble, Balance (front)
Knob	559V070H01	Balance (rear)
Knob	550V137H02	Function Selector
Dial	550V117H03	AM Tuner Indicator
Cabinet	516V097H01	Model H-Rl200
Cabinet	516V099H01	Model H-Rl201
Cabinet	516V096H01	Model H-Rl202
Cabinet	516V097H02	Model H-Rl203
Cabinet	516V112H01	Model H-Rl100
Cabinet	516V112H02	Model H-Rl101
Cabinet	516V112H03	Model H-Rl102
Cabinet	516V112H04	Model H-Rl103
Cabinet Leg	518V001H25	Model H-Rl100
Cabinet Leg	518V001H31	Model H-Rl101
Cabinet Leg	518V001H24	Model H-Rl102
Cabinet Leg	518V001H26	Model H-Rl103

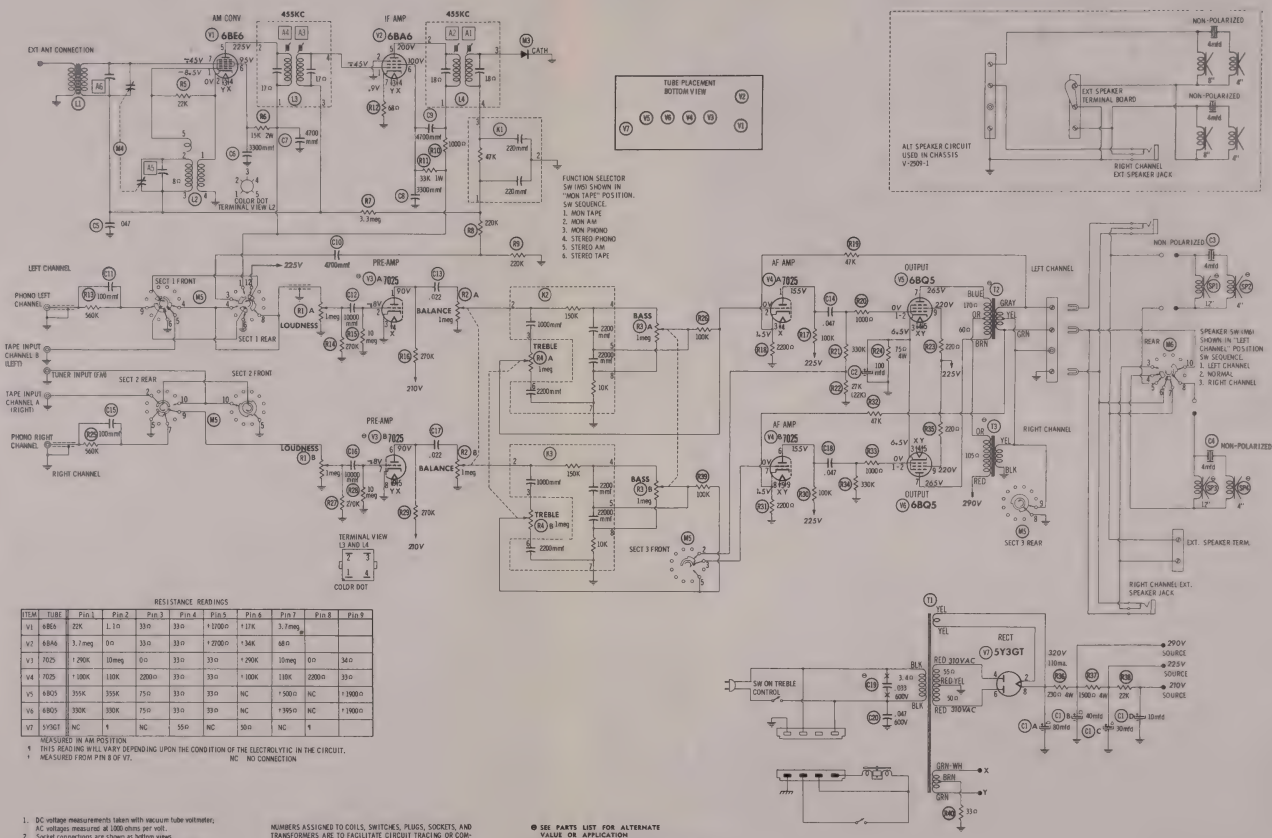
WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No.	1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No.	8401
Phono Pick-up Arm Cable	Use BELDEN No.	8430 (Two Conductor - Twisted)

CHASSIS—TOP VIEW



CHASSIS BOTTOM VIEW



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BE6	22K	1.1Ω	33Ω	33Ω	+17KΩ	+17K	3.7meg	∞	
V2	6BA6	3.7meg	0Ω	33Ω	33Ω	+27KΩ	+34K	68Ω		
V3	7025	+290K	10meg	0Ω	33Ω	33Ω	+290K	10meg	0Ω	34Ω
V4	7025	+100K	110K	220Ω	33Ω	33Ω	+100K	110K	220Ω	33Ω
V5	6BQ5	355K	355K	75Ω	33Ω	33Ω	NC	+500Ω	NC	+1900Ω
V6	6BQ5	330K	330K	75Ω	33Ω	33Ω	NC	+395Ω	NC	+1900Ω
V7	5Y3GT	NC	¶	NC	55Ω	NC	50Ω	NC	¶	

MEASURED IN AM POSITION

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.

+ MEASURED FROM PIN 8 OF V7. NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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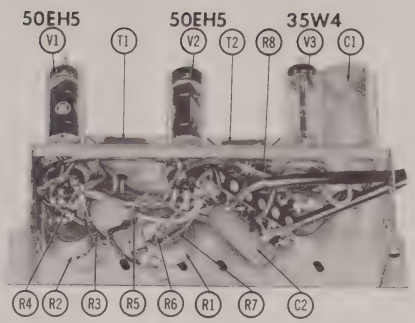
WESTINGHOUSE MODELS H-R1100, H-R1101, H-R1102, H-R1103, H-R1200, H-R1201, H-R1202, H-R1203 (Ch. V-2509-1, -2)

PHOTOFACT® Folder

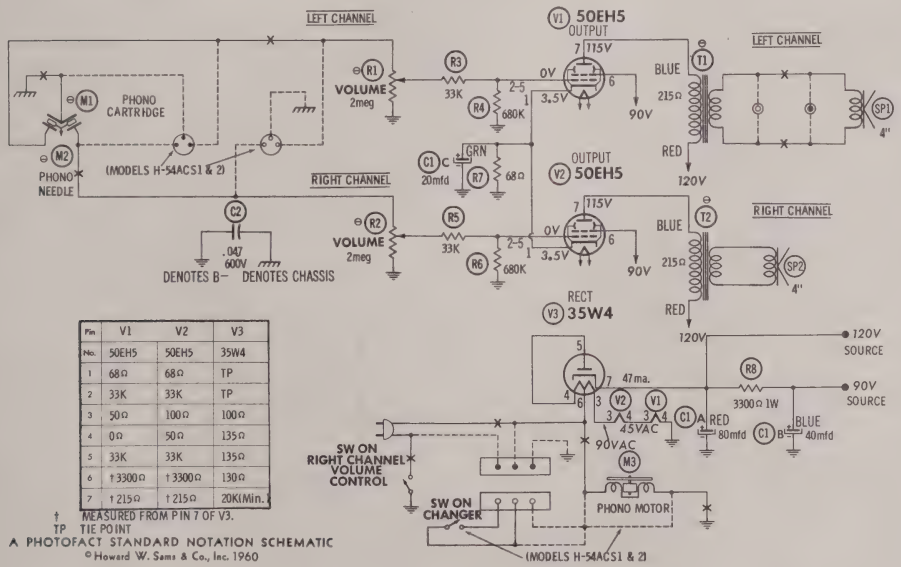
WESTINGHOUSE MODELS H-52MPS1, H-52MPS2, H-52MPS3, H-54ACS1, H-54ACS2 (Ch. V-2508-2, -3)

WESTINGHOUSE MODELS H-52MPS1, H-52MPS2, H-52MPS3, H-54ACS1, H-54ACS2 (Ch. V-2508-2, -3)



TRADE NAME	Westinghouse Models H-52MPS1, H-52MPS2, H-52MPS3 (Ch. V-2508-2); H-54ACS1, H-54ACS2 (Ch. V-2508-3)
MANUFACTURER	Westinghouse Electric Corp., Metuchen, N. J.
TYPE SET	AC Operated 3 Tube Phono Amplifier With 4 Speed Automatic Record Changer (H-52 Series Have 4 Speed Manual Record Player)
POWER SUPPLY	110-120 Volts AC, 60 Cycles RATING 23 Watts, .24 Amp. @ 117 Volts AC

FOR SERVICE INFORMATION ON RECORD CHANGER PART #670V008H01 - SEE MONARCH UA12 - PHOTOFACT SET 465 FOLDER 6



Pin No.	V1	V2	V3
1	68Ω	68Ω	TP
2	33K	33K	TP
3	50Ω	100Ω	100Ω
4	0Ω	50Ω	135Ω
5	33K	33K	135Ω
6	†3300Ω	†3300Ω	130Ω
7	†215Ω	†215Ω	20K(Min.)

† MEASURED FROM PIN 7 OF V3.
TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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WESTINGHOUSE MODELS H-52MPS1, H-52MPS2, H-52MPS3, H-54ACS1, H-54ACS2 (Ch. V-2508-2, -3)

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

JR769

SET488 FOLDER 17

PARTS LIST AND DESCRIPTIONS

TUBES

◆ CBS ◆	GENERAL ELECTRIC ◆	RAYTHEON ◆	SYLVANIA ◆

ITEM No.	USE	TYPE
V1	Left Channel Output	50EH5
V2	Right Channel Output	50EH5
V3	Rectifier	35W4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Westinghouse PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	80	150	218V025H34	PRS4650	BBRT84215	TCT3117	TDLT-7	TVA-3455	
B	40	150							
C	20	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Westinghouse PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2meg	½	270V076H04	B-76	A47-2meg-Z	Q13-139	U55	Volume, Left Channel Note 1
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R2A	2meg	½	270V076H03	B-76	A47-2meg-Z	Q13-139	U55	Volume, Right Channel Note
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KR-1	SWE-12	76-1	US-26	Power Off-On Note 2

Note 1. Chassis V-2508-3 uses (Part #270V076H05).
Note 2. Power switch part of changer on Models H-54ACS1, H-54ACS2.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R3	33K	
R4	680K	

ITEM No.	RATING	REMARKS
R5	33K	
R6	680K	

ITEM No.	RATING	REMARKS
R7	68Ω	
R8	3300Ω 1W	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA Westinghouse PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2800Ω	3-4Ω	430V085H01①	24S53	A-3025	AU-605	A-3332	24S53	S-12X	
T2	2800Ω	3-4Ω	430V085H01①	24S53	A-3025	AU-605	A-3332	24S53	S-12X	

① Part #430V084H01 used in Models H-54ACS1, H-54ACS2.

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA Westinghouse PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	570V059H01	4A07	
SP2	4"	PM	3-4Ω	570V059H01	4A07	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA Westinghouse PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE	JENSEN PART No. CARTRIDGE	JENSEN PART No. NEEDLE	SONOTONE PART No. CARTRIDGE	SONOTONE PART No. NEEDLE
M1	①671V010H02	74TS	N8-3 & N8-7	96	Not Req.				
	② 670V010H01	76TS	N8-3 & N8-7						

① Used in Models H-52MPS1, 2, 3
② Used in Models H-54ACS1, 2

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA Westinghouse PART No.	CLEVITE WALCO PART No.	JENSEN PART No.	REMARKS
M2	690V018H60 † (78RPM)	W-64S † or W-64D ♦	CRA-55 † or CRA-55D ♦	† Jewel ♦ Diamond
	690V023H03 † (LP)	W-106STS † or W-106STD ♦	CRA-55X † or CRA-55XD ♦	

MISCELLANEOUS

ITEM No.	PART NAME	Westinghouse PART No.	NOTES
M3	Motor	690V025H23	Turntable Drive (Manual Player)
	Tone Arm	690V018H73	Gray (Manual Player)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	550V108H05	Off-On Volume, Model H-52MPS1, 2, 3
Knob	550V108H06	Volume, Model H-52MPS1, 2, 3
Knob	559V066H02	Volume, Model H-54ACS1, 2
Knob	690V025H09	Speed Selector, Model H-52MPS-1, 2, 3
Knob	690V018H79	Cartridge Turnover, Model H-52MPS-1, 2, 3
Cabinet	690V012H74	Center Section Only, Model H-52MPS1
Cabinet	690V012H77	Center Section Only, Model H-52MPS2
Cabinet	690V012H80	Center Section Only, Model H-52MPS3
Cabinet	517V006H01	Model H-54ACS1
Cabinet	517V006H02	Model H-54ACS2
Speaker Enclosure	690V012H75	Right, Model H-52MPS1
Speaker Enclosure	690V012H76	Left, Model H-52MPS1
Speaker Enclosure	690V012H78	Right, Model H-52MPS2
Speaker Enclosure	690V012H79	Left, Model H-52MS2
Speaker Enclosure	690V012H81	Right, Model H-52MPS3
Speaker Enclosure	690V012H82	Left, Model H-52MPS3

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

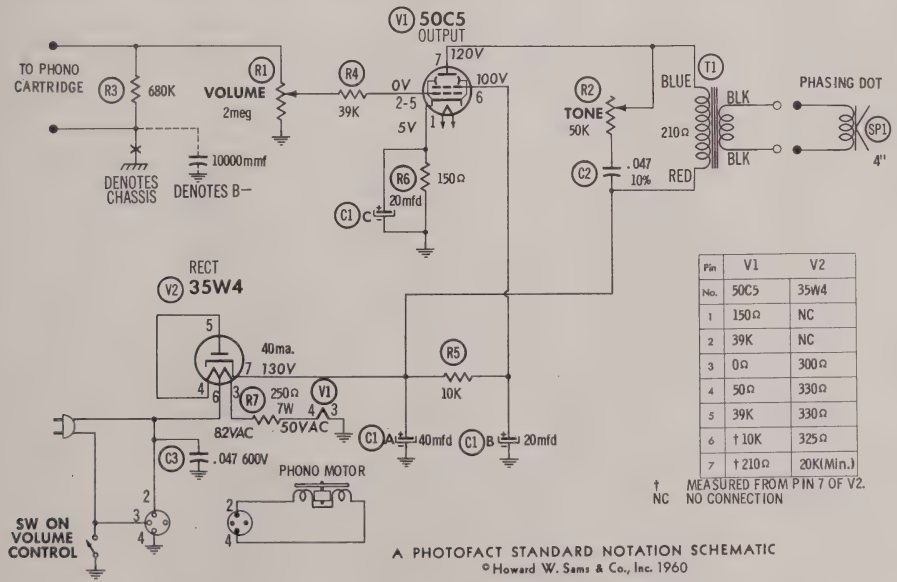
PHOTOFACT® Folder

ZENITH MODEL BP40L (Ch. 2B01)

ZENITH MODEL
BP40L (Ch. 2B01)

TRADE NAME	Zenith Model BP40L (Ch. 2B01)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois
TYPE SET	AC Operated 2 Tube Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles RATING 24 Watts, .23 Amp. @117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER S-14094 — SEE PHOTOFACT SET 472 FOLDER 17



Pin No.	V1	V2
1	150Ω	NC
2	39K	NC
3	0Ω	300Ω
4	50Ω	330Ω
5	39K	330Ω
6	†10K	325Ω
7	†210Ω	20K(Min.)

† MEASURED FROM PIN 7 OF V2.
NC NO CONNECTION

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JS684

SET 488 FOLDER 18

PARTS LIST AND DESCRIPTIONS

TUBES

◆ CBS ◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Output	50C5	V2	Rectifier	35W4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	40	150	22-3124	PRS4400	BBRT4215C	TCT3114	TDLT-12	TVA-3423	
B	20	150							
C	20	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	.047 200V 10%		V84C2S47-10%		PM2S47	4DP-3-473	GEM-1615	2TM-S47
C3	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	2meg	1/2	63-4445	B-75	A47-2meg-S	Q11-139	U56	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KR-1	SWE-12	76-1	US-26	Power Off-On
R2A	50K	1/2	63-4444	B-32	A47-50K-Z	Q13-123	U33	Tone
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R3	680K	
R4	39K	

ITEM No.	RATING	REMARKS
R5	10K	
R6	150Ω	

ITEM No.	RATING	REMARKS
R7	250Ω 7W	#66-4443

Zenith Part Number.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2500Ω	3-4Ω	95-1637	26S58	A-3025①	AU-605①	A-3332①	26S58	S-12X①	① Use Original Frame

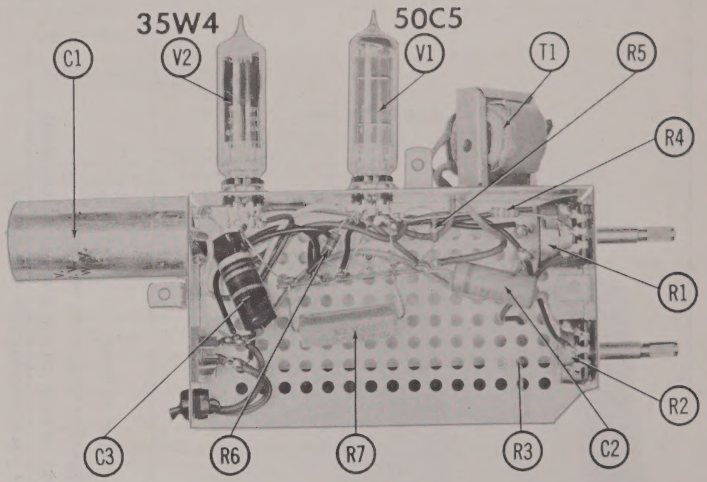
SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	49-838	4A1	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA								
	ZENITH PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		JENSEN PART No.		SONOTONE PART No.	
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE
M1	142-97	414-1	N8-1	41-1		31	CRA-55LP		

CHASSIS—BOTTOM VIEW



PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	ZENITH PART No.	CLEVITE WALCO PART No.	JENSEN PART No.	
M2		W-64AGS †	CRA-55LP †	† Jewel

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

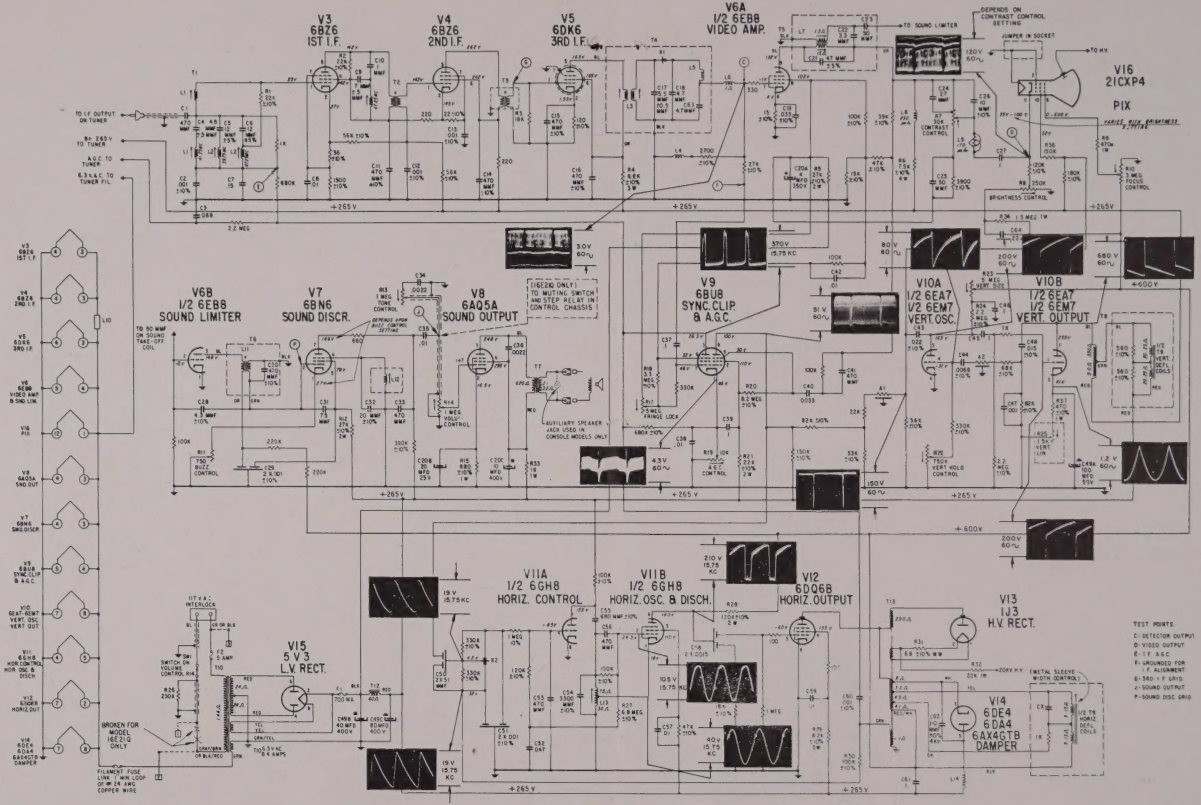
NAME	PART NO.	DESCRIPTION
Knob	46-1401	Volume, Tone
Cabinet	14-2464L	
Handle	36-229	

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No.	1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No.	8401
Phono Pick-up Arm Cable	Use BELDEN No.	8430 (Two Conductor - Twisted)

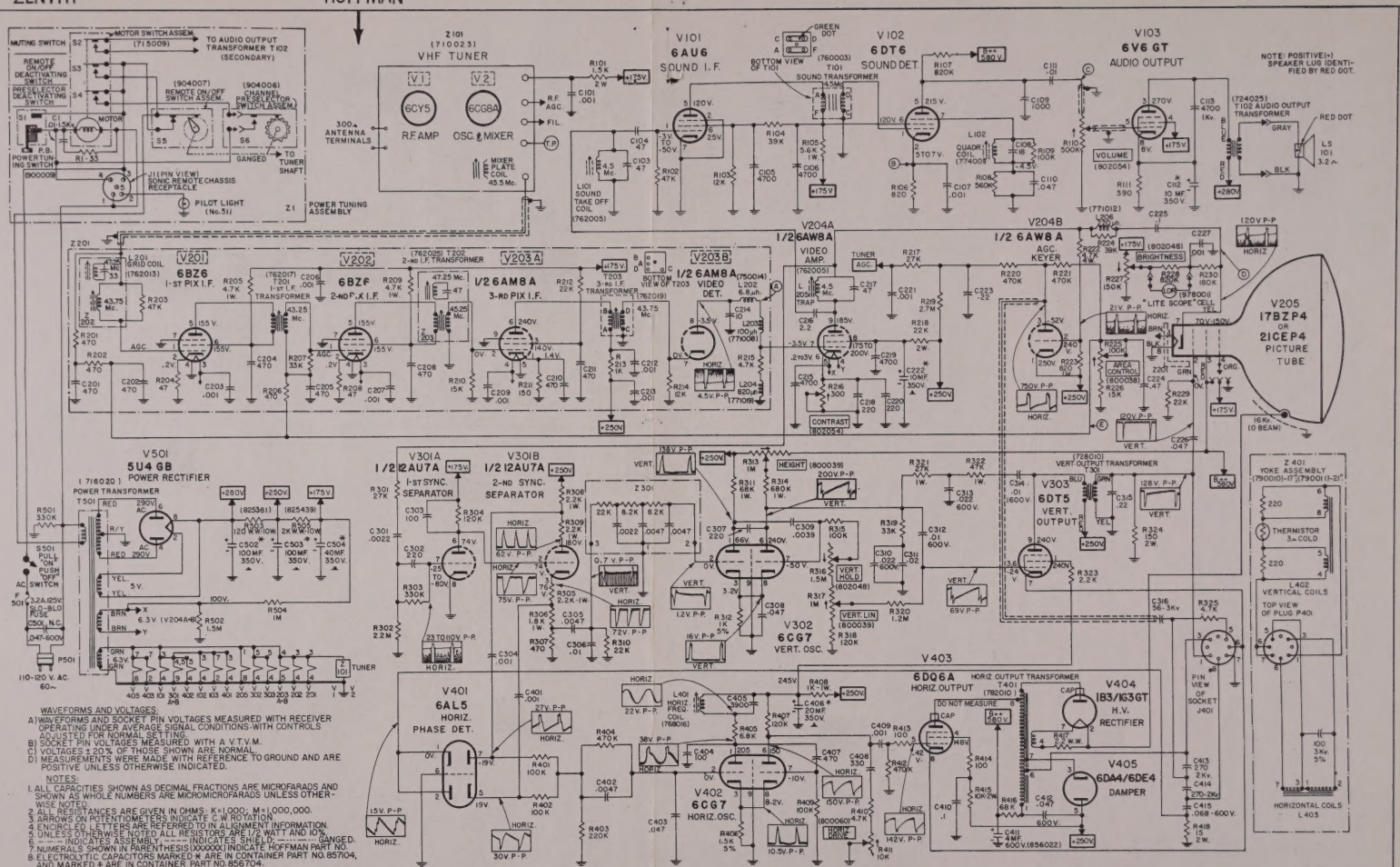
ZENITH MODEL
BP40L (Ch. 28D1)

FOLDER 1 8


V3 6BZ6 1ST I.F.
V4 6BZ6 2ND I.F.
V5 6DK6 3RD I.F.
V6A 1/2 6EB8 VIDEO AMP.
V16 21CXP4 PIX
V6B 1/2 6EB8 SOUND LIMITER
V7 6BN6 SOUND DISCR.
V8 6AQ5A SOUND OUTPUT
V9 6BU8 SYNC. CLIP. & A.G.C.
V10A 1/2 6EA7 1/2 6EM7 VERT. OSC.
V10B 1/2 6EA7 1/2 6EM7 VERT. OUTPUT
V11A 1/2 6GH8 HORIZ. CONTROL
V11B 1/2 6GH8 HORIZ. OSC. & DISCH.
V12 6DQ6B HORIZ. OUTPUT
V13 1J3 H.V. RECT.
V14 6DE4 6DA4 6AX4GTB DAMPER
V15 5V3 L.V. RECT.
TO SOUND LIMITER
TO H.V.
+265 V
+600 V
SOCKET AND WIRING FOR 16E21Q MODEL

ZENITH MODELS E2301R, RU, Y, YU, E2302R, RU, E2315L, LU, E2316E, EU, R, RU, W, WU, E2345E, EU, R, RU, W, WU, E2346E, EU, R, RU, W, WU, E2347 E, EU, L, LU, M, MU, R, RU, W, WU, E2348E, EU, R, RU, W, WU, E2350 H, HU, M, MU, R, RU, W, WU, E2384H, HU, R, RU, E3002, E, R, W, E3004E, R, W, E3005E, M R, W, E3006E, R, W, Y, E3007E, R, M, W, E3008R, E3009E, W, Y (CH. 16E21, Q, U)

Schematic Diagram Courtesy of Zenith Radio Corporation


MUTING SWITCH
REMOTE ON-OFF DEACTIVATING SWITCH
PRESELECTOR DEACTIVATING SWITCH
POWER TUNING SWITCH
MOTOR SWITCH ASSEM. (71-5009)
TO AUDIO OUTPUT TRANSFORMER T102 (SECONDARY)
(904007) REMOTE ON/OFF SWITCH ASSEM.
(904006) CHANNEL PRESELECTOR SWITCH ASSEM.
MOTOR
GANGED
TO TUNER SHAFT
11 PIN VIEW SONIC REMOTE CHASSIS RECEPTACLE
PILOT LIGHT (No. 51)
POWER TUNING ASSEMBLY
Z101 (71-0023) VHF TUNER
300Ω ANTENNA TERMINALS
6CY5 R.F. AMP
6CG8A OSC. & MIXER
R.F. AGC.
FIL.
T.P.
MIXER PLATE COIL 45.5 Mc.
V101 6AU6 SOUND I.F.
V102 6DT6 SOUND DET.
SOUND TRANSMITTER T101
GREEN DOT
BOTTOM VIEW OF T101
L101 SOUND TAKE OFF COIL (762005)
4.5 Mc.
V103 6V6 GT AUDIO OUTPUT
NOTE: POSITIVE (+) SPEAKER LUG IDENTIFIED BY RED DOT.
(724025) T102 AUDIO OUTPUT TRANSFORMER
RED DOT
GRAY
BLK.
LS 10" 3.2Ω
VOLUME (802054)
QUADRATURE COIL (774008)
(771012)
10 MF 350V.
V201 6BZ6 1ST PIX I.F.
V202 6BZ6 2ND PIX I.F.
V203A 1/2 6AM8A 3RD PIX I.F.
V203B 1/2 6AM8A VIDEO DET.
(762008) T202 2ND I.F. TRANSFORMER
(762007) T201 1ST I.F. TRANSFORMER
(762019) T203 3RD I.F. TRANSFORMER
BOTTOM VIEW OF T203
(750014)
L202 6.8μh 5%
L203 100μh (771008)
L204 820μh (771019)
43.75 Mc.
45.25 Mc.
47.25 Mc.
V204A 1/2 6AW8A VIDEO AMP.
V204B 1/2 6AW8A AGC KEYER
TUNER AGC
(762005)
4.5 Mc. TRAP
BRIGHTNESS (802048)
"LITE SCOPE" CELL (878000)
AREA CONTROL (800038)
CONTRAST (802054)
V205 17BZP4 OR 21CEP4 PICTURE TUBE
16 KV. (0 BEAM)
V501 5U4 GB (716020) POWER RECTIFIER
POWER TRANSFORMER T501
S501 PUSH TONE PUSH OFF AC SWITCH
F501 3.2A. 125V SLO-BLO FUSE
P501 110-120 V. AC. 60~
V301A 1/2 12AU7A 1ST SYNC. SEPARATOR
V301B 1/2 12AU7A 2ND SYNC. SEPARATOR
Z301
HEIGHT (800039)
VERT. HOLD (802048)
VERT. LIN (800039)
V302 6CG7 VERT. OSC.
(728010) VERT. OUTPUT TRANSFORMER T301
V303 6DT5 VERT. OUTPUT
Z401 YOKE ASSEMBLY (790010)-17" (790011)-21"
THERMISTOR 3Ω COLD
L402 VERTICAL COILS
TOP VIEW OF PLUG P401
PIN VIEW OF SOCKET J401
HORIZONTAL COILS L403
V401 6AL5 HORIZ. PHASE DET.
V402 6CG7 HORIZ. OSC.
V403 6DQ6A HORIZ. OUTPUT
HORIZ. OUTPUT TRANSFORMER T401 (782001)
DO NOT MEASURE
V404 1B3/1G3GT H.V. RECTIFIER
V405 6DA4/6DE4 DAMPER
HORIZ. DRIVE
TUNER
WAVEFORMS AND VOLTAGES:
A) WAVEFORMS AND SOCKET PIN VOLTAGES MEASURED WITH RECEIVER OPERATING UNDER AVERAGE SIGNAL CONDITIONS WITH CONTROLS ADJUSTED FOR NORMAL SETTING.
B) SOCKET PIN VOLTAGES MEASURED WITH A V.T.V.M.
C) VOLTAGES ±20% OF THOSE SHOWN ARE NORMAL.
D) MEASUREMENTS WERE MADE WITH REFERENCE TO GROUND AND ARE POSITIVE UNLESS OTHERWISE INDICATED.
NOTES:
1. ALL CAPACITIES SHOWN AS DECIMAL FRACTIONS ARE MICROFARADS AND SHOWN AS WHOLE NUMBERS ARE MICROMICROFARADS UNLESS OTHERWISE NOTED.
2. ALL RESISTANCES ARE GIVEN IN OHMS: K=1,000; M=1,000,000.
3. ARROWS ON POTENTIOMETERS INDICATE C.W. ROTATION.
4. ENCIRCLED LETTERS ARE REFERRED TO IN ALIGNMENT INFORMATION.
5. UNLESS OTHERWISE NOTED ALL RESISTORS ARE 1/2 WATT AND 10%.
6. ——— INDICATES ASSEMBLY. ——— INDICATES SHIELD. ——— GANGED.
7. NUMERALS SHOWN IN PARENTHESIS (XXXXXX) INDICATE HOFFMAN PART NO.
8. ELECTROLYTIC CAPACITORS MARKED ★ ARE IN CONTAINER PART NO. 857104, AND MARKED + ARE IN CONTAINER PART NO. 856704.

HOFFMAN MODELS 1367 SERIES, 1371 SERIES (CH. 351, 352)

Schematic Diagram Courtesy of Hoffman Electronics Corporation

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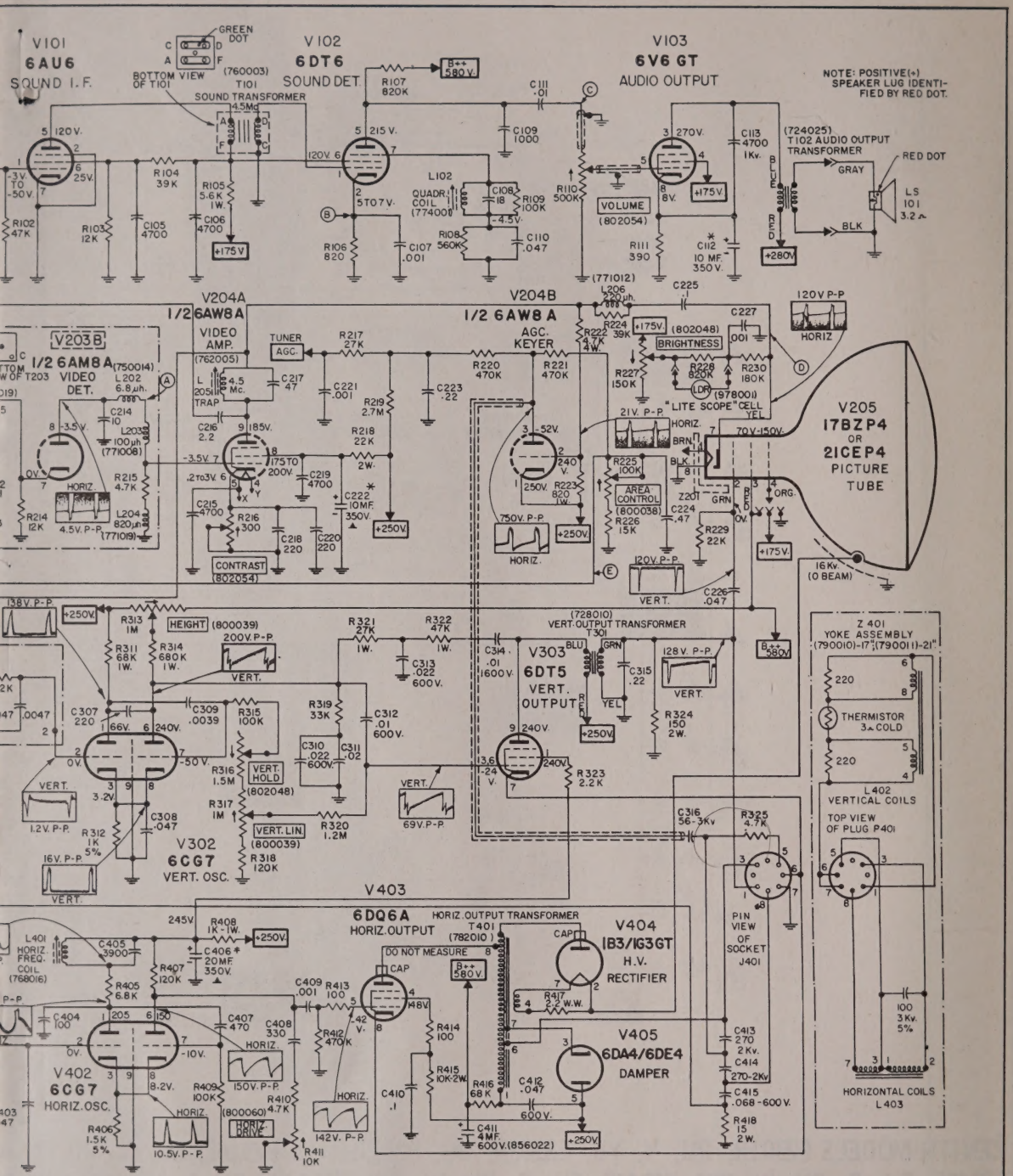

Schematic Diagram Courtesy of Hoffman Electronics Corporation